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University of Missouri

Agricultural Markets & Policy
University of Missouri

U.S. Baseline Outlook

Projections for Agricultural and Biofuel Markets

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Any opinion, findings, conclusions, or recommendations expressed in this publication are those of the authors and do not necessarily reflect the view of the U.S. Department of Agriculture nor the University of Missouri.

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The Agricultural and Food Policy Center at Texas A&M University will prepare a companion set of estimates of the farm-level impacts of these projections (www.afpc.tamu.edu).

The authors would like to thank participants in a workshop reviewing a preliminary version of these estimates in Washington, D.C., in December 2018. Any remaining errors are those of the authors.

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Summary

Pressure on farm finances appears likely to continue. Projected net farm income increases in 2019 but remains below the 2014-17 average. Longer-term projections suggest little change in real net farm income over the next decade, resulting in continued increases in the farm sector's debt-to-asset ratio.

These baseline projections for agricultural and biofuel markets were prepared using market information available in February 2019. Macroeconomic assumptions are based primarily on forecasts by IHS Markit, which suggest moderate growth in the U.S. and global economies. The baseline incorporates 2018 farm bill provisions and assumes a continuation of trade policies in place in February 2019, including the tariffs on U.S. farm products that were imposed by China and other countries in 2018.

Commodity markets will continue to be volatile. We use our models to develop a range of projected market outcomes that takes into account some major sources of uncertainty about future supply and demand conditions. In some of the resulting 500 outcomes, prices, quantities and values are much higher or much lower than the averages reported here.

Some key results:

- Projected prices for U.S. soybeans and other products affected by current trade disputes remain below levels that would prevail if foreign tariffs were removed. Marketing-year-average (MYA) soybean prices stay below $9.00 per bushel for a second straight year in 2019/20.

- Projected corn prices increase for a second straight year in 2019/20.

- Further recovery in wheat prices could be limited by continued large global supplies, while cotton prices could fall in 2019/20 in response to increased U.S. production.

- These estimates were prepared before the March 29 USDA planting intentions report was released. That report suggests slightly more acres of corn and fewer acres of wheat and cotton than reported here. Actual 2019 acreage will also depend on spring weather and other factors.

- Increasing U.S. meat supplies continue to weigh on livestock and poultry prices in 2019. The possible impacts of African swine fever (ASF) in China and other countries have pushed up pork futures prices since these estimates were prepared.

- Under the 2018 farm bill, more corn, soybean and wheat producers are projected to choose the Price Loss Coverage (PLC) program when they have a chance to make new program elections in 2019.

- Projected PLC payments total an average of $5 billion per year over the next decade, with other commodity programs adding another $1 billion per year in payments.

- Crop insurance net indemnities (payments for losses minus producer-paid premiums) average more than $6 billion per year over the next ten years. Both commodity program and crop insurance benefits are very sensitive to weather and market conditions.

- Although it remains well below the levels of the 1980s, the ratio of U.S. farm debts to assets has increased from 11.3 percent in 2012 to 13.5 percent in 2018. The outlook is for continued stress on farm finances, with the debt-to-asset ratio averaging 14.8 percent between 2020 and 2028.

- After a period of exceptionally low food price inflation, the index of consumer food prices is projected to increase by about 2 percent in 2019 and subsequent years, similar to the overall rate of inflation in the U.S. economy.

Key results

Marketing year	2014/15-2017/18 average	2018/19	2019/20	2020/21-2028/29 average
Crop prices				
Corn farm price, dollars per bushel	3.51	3.53	3.81	3.76
Soybean farm price, dollars per bushel	9.46	8.42	8.78	9.06
Wheat farm price, dollars per bushel	4.87	5.16	5.31	5.18
Upland cotton farm price, cents per pound	64.8	71.7	64.5	66.8
Crop program benefits, billion dollars				
Agriculture risk coverage	3.79	1.01	0.63	0.71
Price loss coverage	1.96	1.84	4.48	5.35
Marketing loan benefits	0.21	0.00	0.43	0.59
Market facilitation program	n.a.	8.86	n.a.	n.a.
Crop insurance net indemnities	2.51	3.31	5.68	6.54
Sum of above	8.48	15.02	11.21	13.20

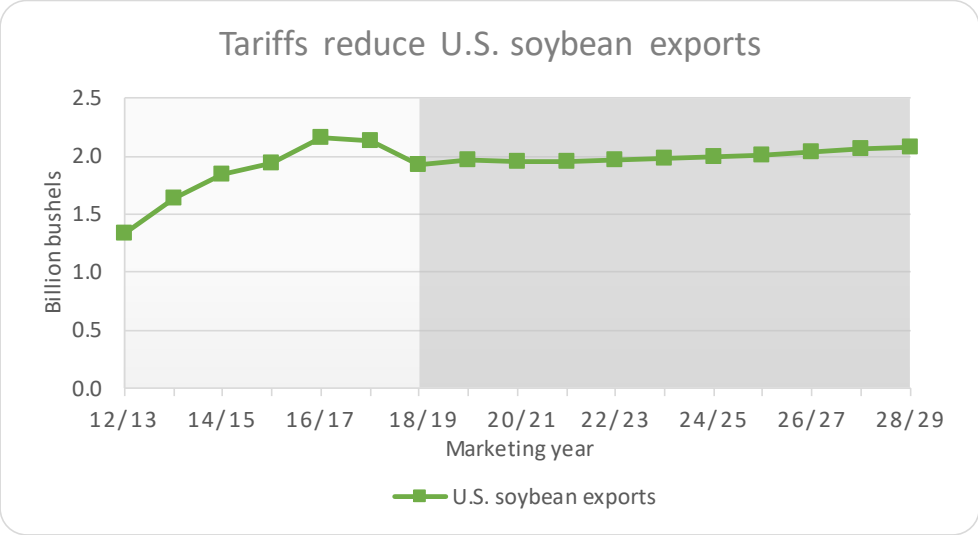
Calendar year except as noted	2014-2017 average	2018	2019	2020-2028 average
Livestock sector prices				
Fed steers, 5-area direct, dollars per cwt	136.26	117.12	114.17	122.40
Barrows and gilts, 51-52% lean, dollars per cwt	55.73	45.93	43.69	53.14
National wholesale broiler, cents per pound	93.32	97.80	95.65	96.45
All milk, dollars per cwt	18.83	16.23	17.02	17.88
Biofuel production, billion gallons				
Ethanol	15.1	16.1	15.9	16.6
Corn starch-based ethanol	14.9	16.0	15.8	16.4
Biomass-based diesel	1.8	2.4	2.7	3.1
Government outlays, billion dollars, fiscal year				
Commodity Credit Corporation net outlays	9.8	11.2	17.2	10.1
Major commodity programs	5.2	7.8	3.7	6.7
MFP, CRP, disaster and all other CCC net outlays	4.6	3.4	13.5	3.4
Crop insurance net outlays	6.0	6.5	6.2	9.0
Net farm income, billion dollars	77.4	63.1	68.6	80.1
In 2019 dollars	82.3	64.5	68.6	71.2
Farm balance sheet, billion dollars				
Farm assets	2,952	3,033	3,035	3,086
Farm debt	367	411	423	456
Debt/asset ratio	12.4%	13.5%	13.9%	14.8%
Annual consumer food price inflation	1.3%	1.4%	2.1%	2.4%

* Includes corn, soybeans, wheat, upland cotton, sorghum, barley, oats, rice, peanuts, sunflowers, sugarcane and sugar beets.

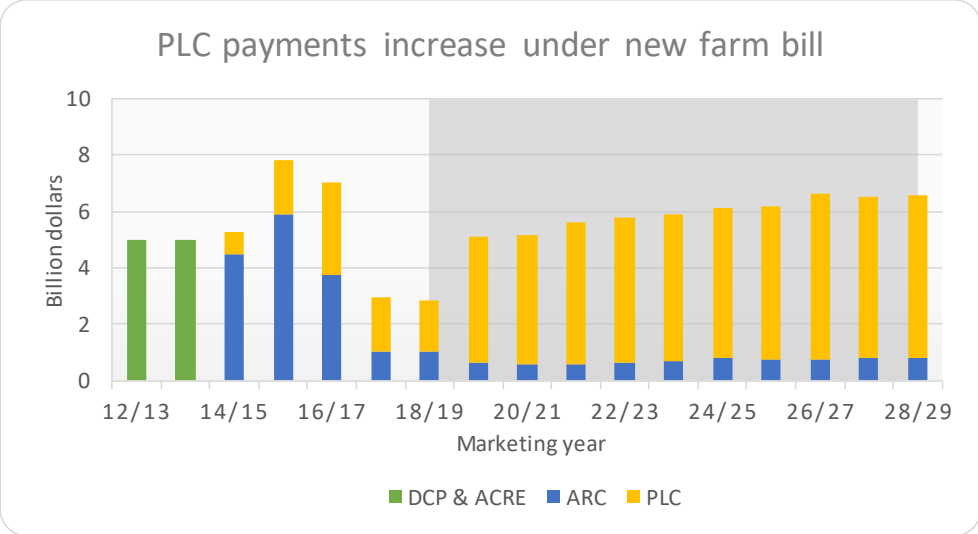
Note: The estimates are based on market information available in February 2019. Projections are averages across 500 outcomes.

Assumptions & Overview

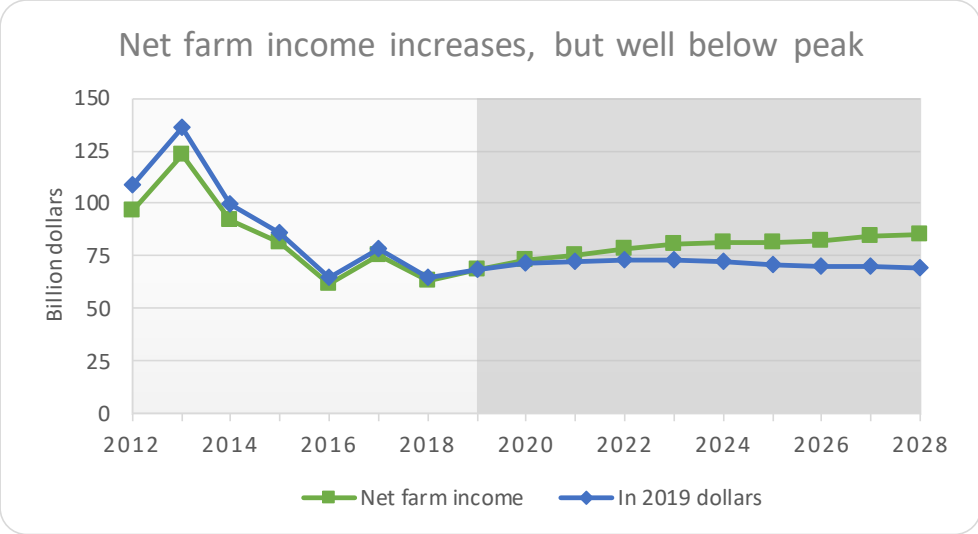
Tariffs imposed in 2018 by China and other countries have reduced U.S. exports and prices of soybeans and other products. The baseline assumes that these tariffs remain in place for the next ten years. The baseline can serve as a point of reference when examining alternative ways in which current trade disputes might be resolved.

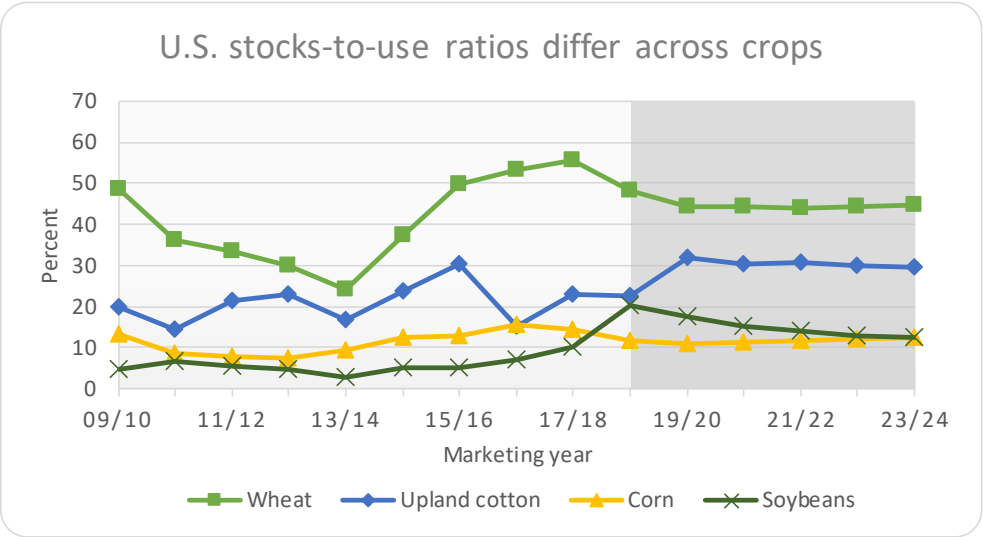


The 2018 farm bill gives producers the ability to make new elections between price loss coverage (PLC) and agriculture risk coverage (ARC) in 2019, 2021, 2022 and 2023. Given expected payment rates per acre, PLC enrollment increases in 2019. The drop in ARC payment rates after 2015 is explained in part by reductions in the moving average of market prices used to calculate revenue benchmarks.



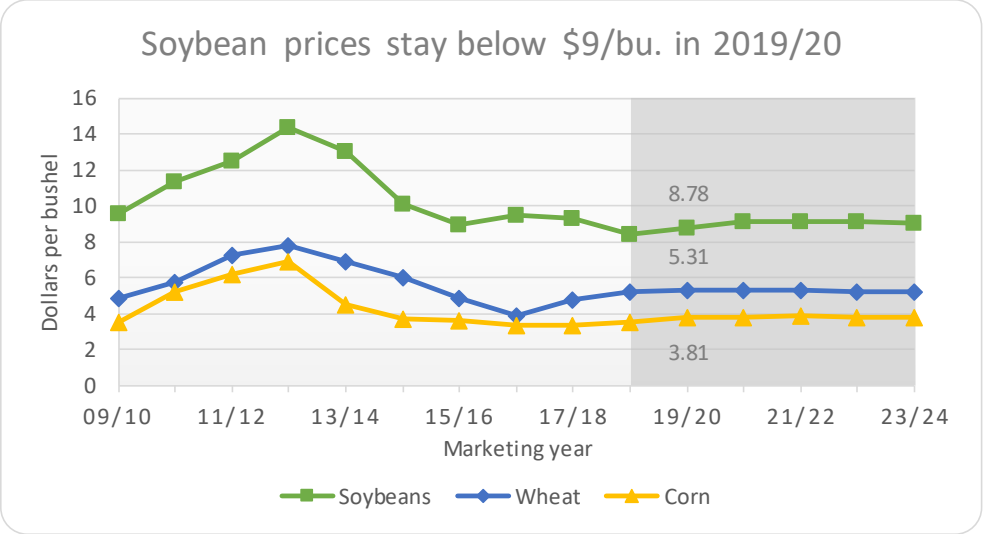
In 2019 dollars, real net farm income in 2018 was less than half of the peak level of 2013. Real net farm income increases slightly through 2022, but remains far below the levels that prevailed during the boom years of 2010-2013.



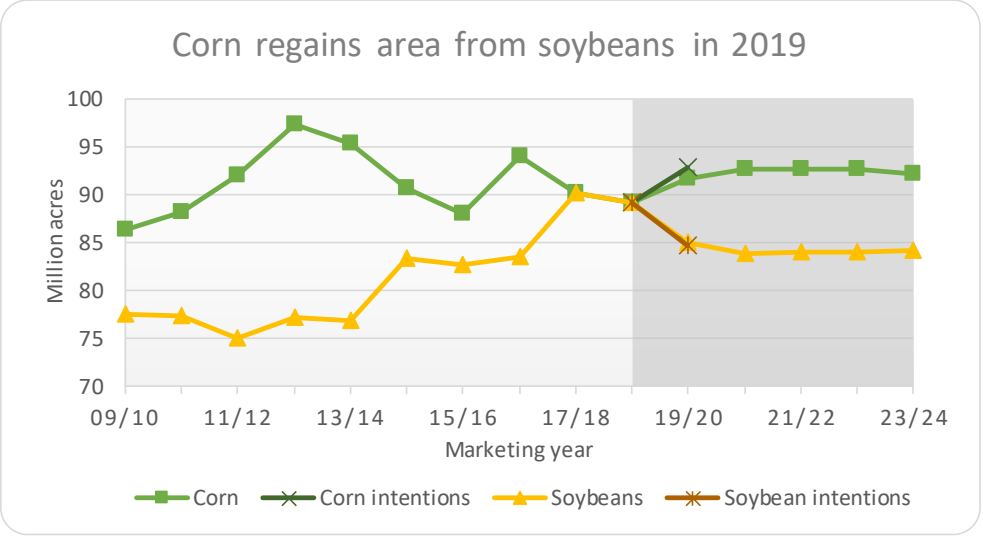


Crop outlook highlights

The ratio of carryover stocks to annual use differs greatly across U.S. crops. The projected ratios for both wheat and corn decline in 2018/19 and 2019/20, as use exceeds the sum of production and imports. Because of a large 2018 crop and reduced exports, the soybean stock-to-use ratio increases sharply in 2018/19 and takes years to return to more normal levels. A projected increase in production raises the upland cotton ratio in 2019/20.



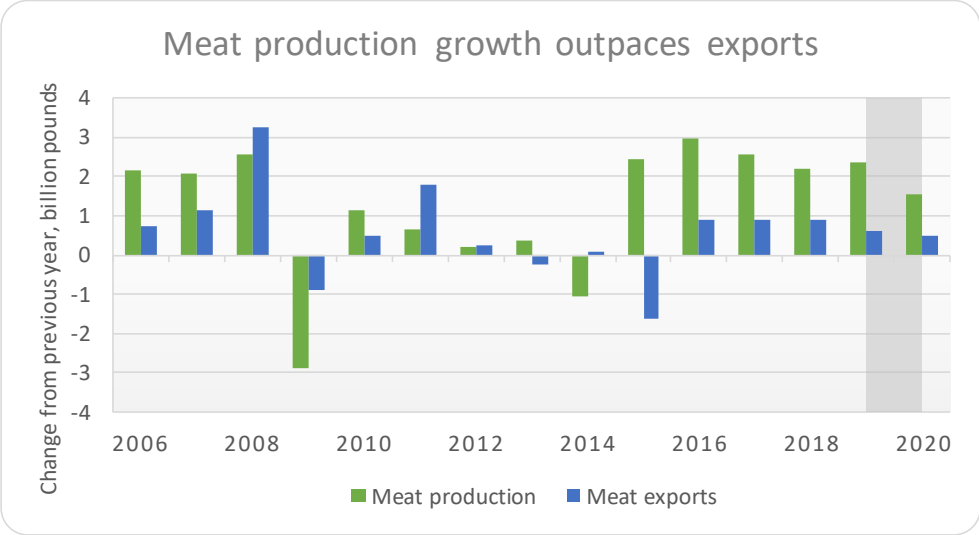
The large increase in expected carryout stocks has weighed on soybean prices in the 2018/19 marketing year. Without a resolution to trade disputes, soybean prices could remain below $9 per bushel for a second straight year in 2019/20. Projected corn and wheat prices increase slightly in 2019/20. Average projected prices remain fairly steady in later years, but weather and other factors will cause actual prices to be much more volatile.



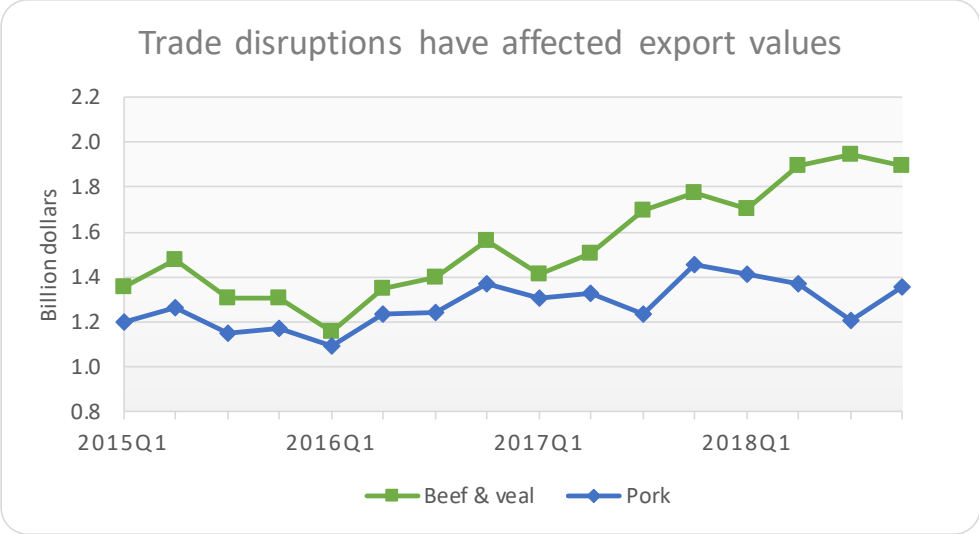
U.S. producers planted about the same number of acres to corn as to soybeans in both 2017 and 2018. Lower soybean prices relative to corn result in a projected shift of soybean acreage back to corn production in 2019. USDA's acreage intentions report, released after these estimates were prepared, tell a similar story, although the shift to corn was even greater in the USDA figures. Actual 2019 acreage will also depend on spring planting conditions and other factors.

Livestock and dairy outlook highlights

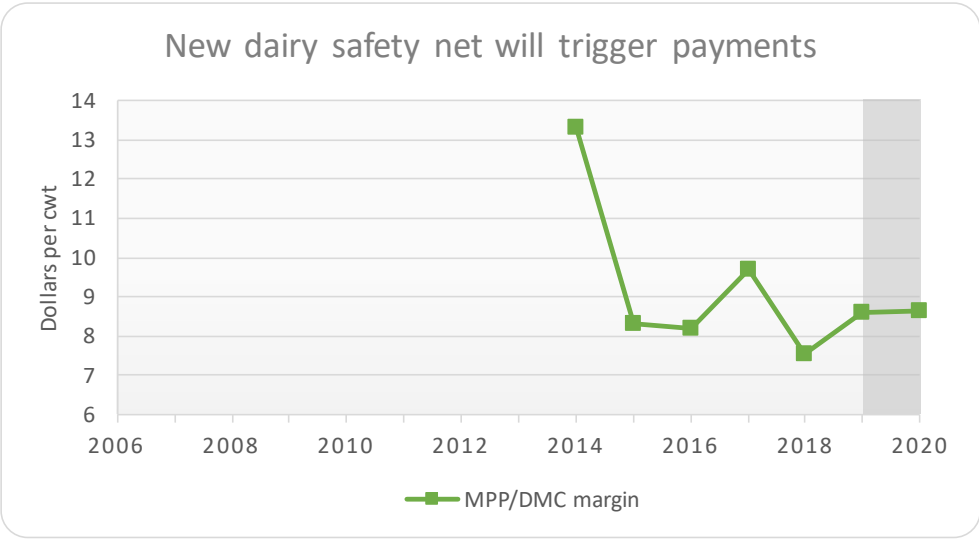
Meat production will increase again in 2019, the fifth consecutive year of output gains exceeding 2 billion pounds. While meat export growth has been positive since 2016, it has not kept pace with the increases in production. This has resulted in steady to lower prices for most livestock commodities, even with good domestic demand strength. Production growth will slow beginning in 2020.

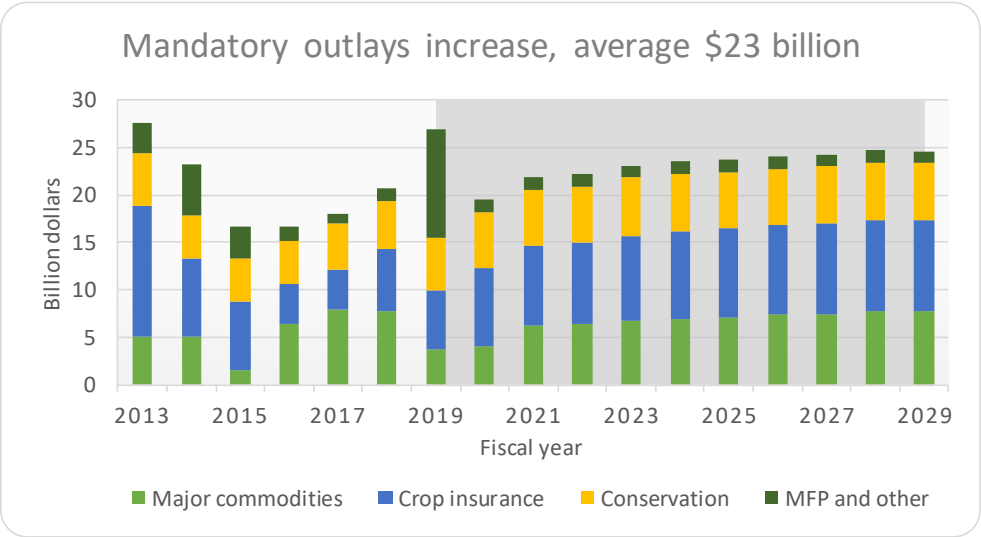


Though pork export quantities grew by more than 4 percent in 2018, the value of total pork exports fell by nearly 5 percent in the second half of the year relative to 2017. Tariffs imposed by China and Mexico have particularly impacted pork trade in those markets. With domestic meat availability approaching record levels and production growth expected to continue, exports are critical to the meat sector. The presence of ASF in China could support stronger pork exports in coming months.



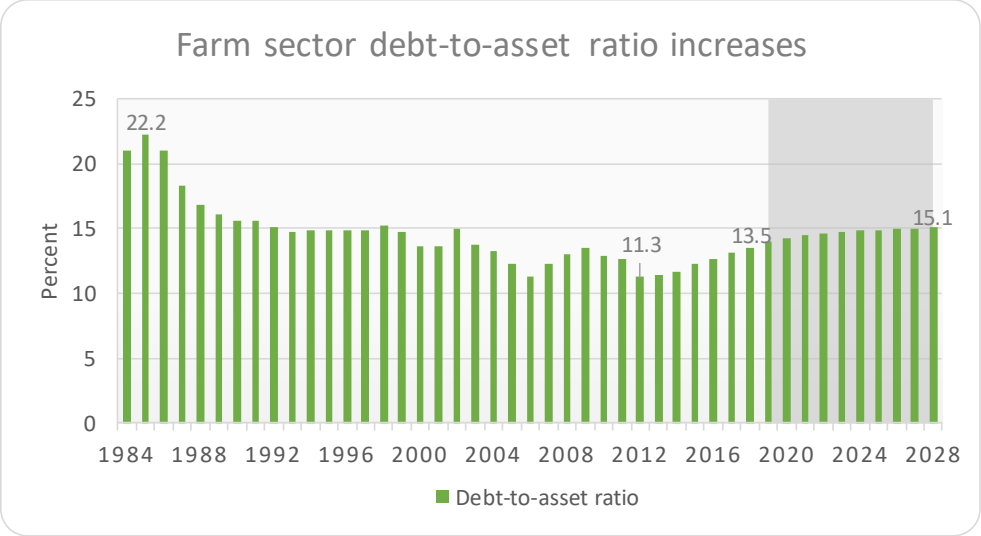
The 2018 farm bill has significantly changed the dairy margin program. The Dairy Margin Coverage (DMC) program adjusts both the level of margin support and premium costs relative to the Margin Protection Program (MPP). Margin coverage can now extend to $9.50 per cwt on a producer's first 5 million pounds of production history. With the annual average margin projected to remain below $9.00 through 2020, this new program could be attractive to many producers.



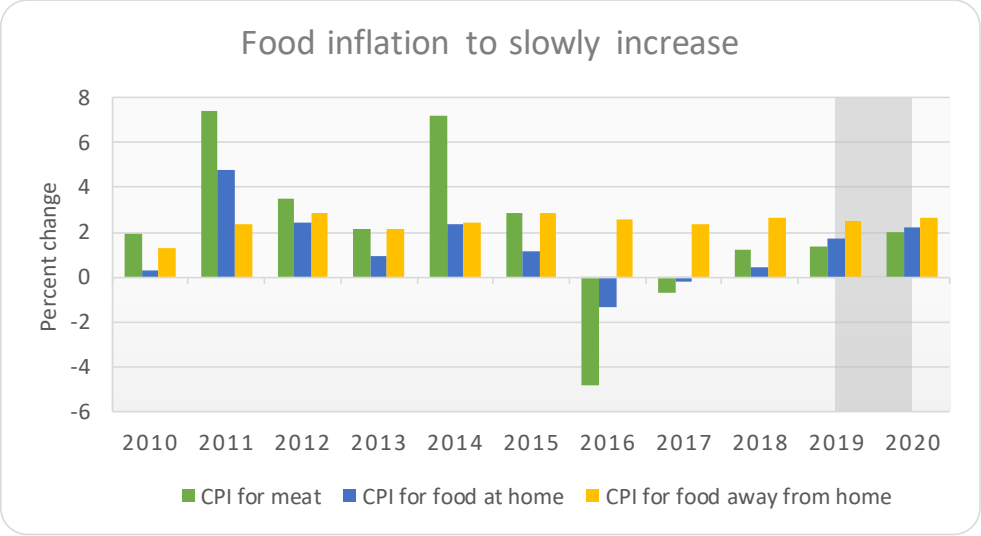


Government costs, debt and food prices

Market Facilitation Program (MFP) payments mean that fiscal year (FY) 2019 spending on mandatory farm and conservation programs could reach the highest level since FY 2013. Without further MFP payments, budget costs decline in FY 2020 but then increase over time. Total outlays on these programs average $23 billion per year between FY 2020 and FY 2029.



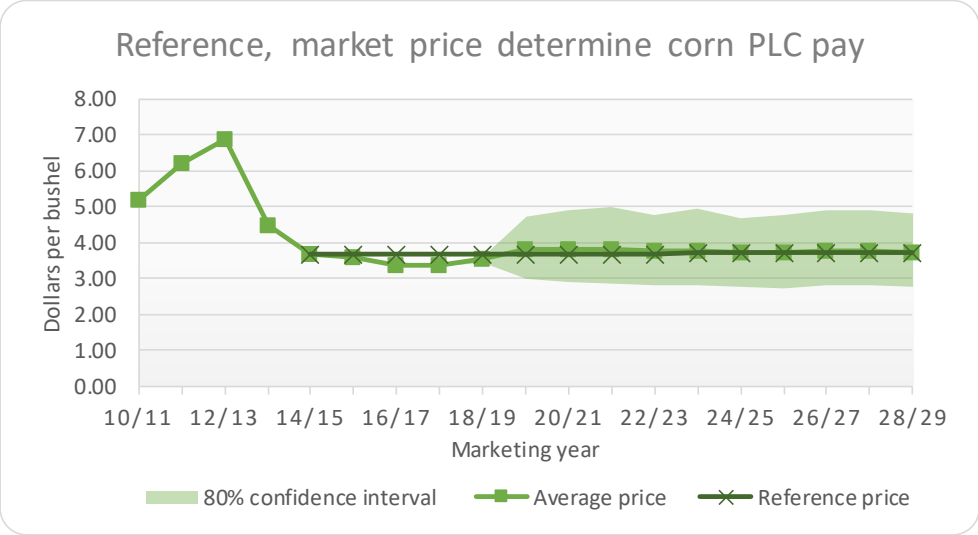
The debt-to-asset ratio for the farm sector declined from 22.2 percent in 1985 at the peak of the farm crisis to 11.3 percent in 2012. The ratio then increased steadily to 13.5 percent in 2018. With real farm income remaining well below the levels of 2010-2013, projected debt levels increase more rapidly than the value of farm assets. The debt-to-asset ratio increases to 15.1 percent by 2028, suggesting continued stress on farm finances.



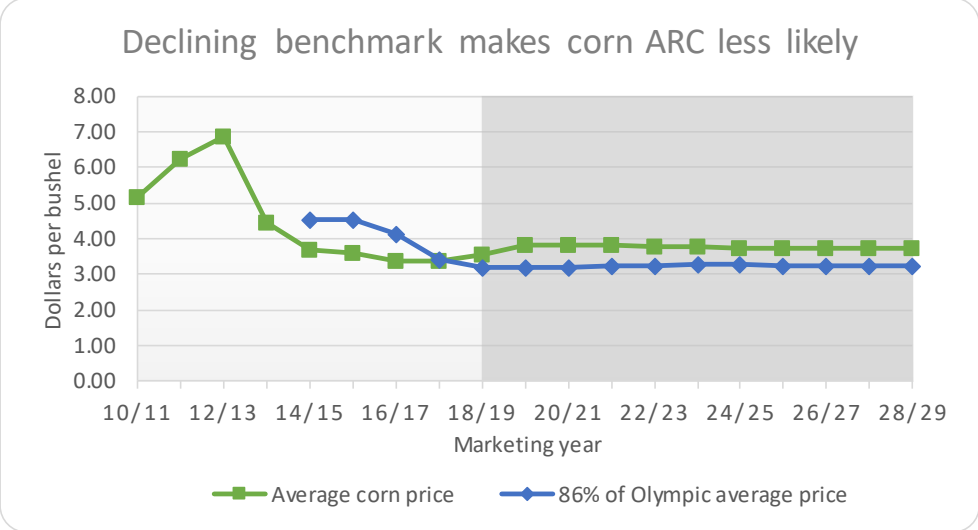
Following three years of extremely low food price inflation, the consumer price index for food at home will increase by 1.7 percent in 2019. With steady increases in food-away-from-home costs continuing due to a relatively strong economy and higher labor costs, inflation in the overall CPI for food will surpass 2.0 percent this year for the first time since 2014. Volatility in energy and agricultural commodity markets has diminished in recent years, helping food prices to remain relatively stable.

Policy assumptions

Participating producers receive PLC payments on base acres when national MYA prices fall below the reference price. For corn, the projected average prices reported here are very close to the reference price. However, the distribution of future corn prices reflects many possible outcomes where prices are low enough that corn PLC payments occur, and a few where a moving average of corn prices is high enough to trigger an increase in the reference price.

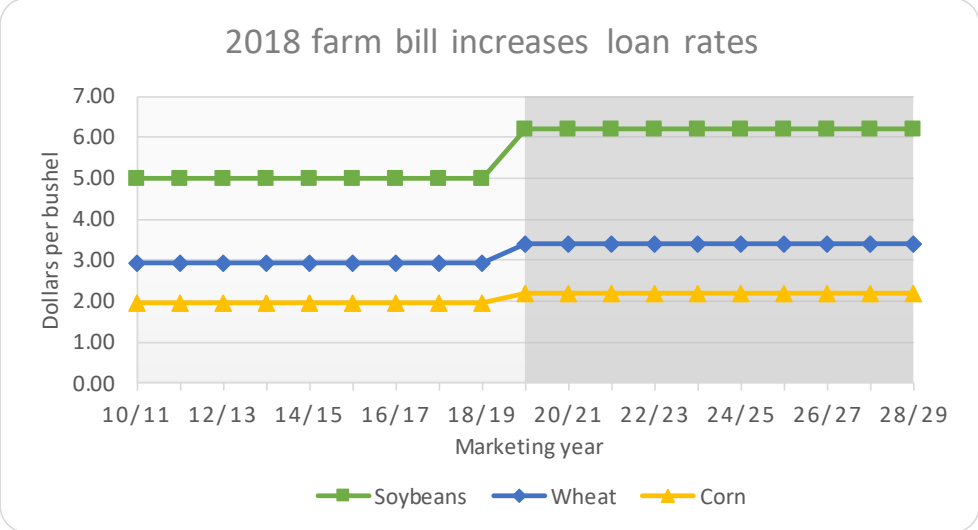


ARC is the other option for program crops. ARC-CO payments occur when county revenues per acre (county yield times national price) falls below 86% of a benchmark determined by multiplying an Olympic average of prices by a trend-adjusted Olympic average of county yields. When prices exceed 86% of the Olympic average, ARC payments can only occur if county yields are below the trend-adjusted Olympic average. The chart helps explain why corn ARC payments were common from 2014-2016, but may occur less frequently in the future.



In addition to some changes in ARC and PLC, the 2018 farm bill also increases loan rates for several commodities. The new loan rates are generally below expected market prices.

Other important changes in the farm bill include a revised dairy margin program, an increase in the cap on conservation reserve enrollment and changes to the Conservation Stewardship Program.



Selected U.S. crop commodity program provisions

Policy	Crop/provision	2018/19	2019/20-2028/29 average
Price loss coverage (PLC)		Reference price	Reference price
(Makes payments when marketing year average (MYA) price falls below the indicated reference price. Paid on 85% of base acres and program yields. Reference price can exceed the statutory minimum if the moving average of MYA prices exceeds the minimum by at least 17.6%.)	Corn	$3.70 per bu.	$3.71 per bu.
	Soybeans	$8.40 per bu.	$8.46 per bu.
	Wheat	$5.50 per bu.	$5.51 per bu.
	Long grain rice	$14.00 per cwt	$14.00 per cwt
	Japonica rice	$16.10 per cwt	$17.56 per cwt
	Sorghum	$3.95 per bu.	$3.95 per bu.
	Barley	$4.95 per bu.	$4.95 per bu.
	Oats	$2.40 per bu.	$2.44 per bu.
	Peanuts	$535.00 per ton	$535.00 per ton
	Sunflowers	$0.202 per lb	$0.202 per lb
	Seed cotton	$0.367 per lb	$0.367 per lb
Agriculture risk coverage (ARC)			
(County version (ARC-CO) makes payments when county revenues per acre fall below a percentage of a benchmark county revenue tied to moving averages of MYA prices and county yields.)	Paid on	85% of base acreage	85% of base acreage
	Benchmark price	5-year Olympic avg.	5-year Olympic avg.
	Benchmark yield	5-year Olympic avg.	Trend-adjusted 5-year Olympic avg.
	Trigger revenue	86% of benchmark	86% of benchmark
	Max. payment	10% of benchmark	10% of benchmark
Marketing loan program		Loan rate	Loan rate
(Producers can borrow at the loan rate and receive benefits if a market price indicator falls below the loan rate.)	Corn	$1.95 per bu.	$2.20 per bu.
	Soybeans	$5.00 per bu.	$6.20 per bu.
	Wheat	$2.94 per bu.	$3.38 per bu.
	Rice	$6.50 per cwt	$7.00 per cwt
	Upland cotton	$0.520 per lb	$0.519 per lb

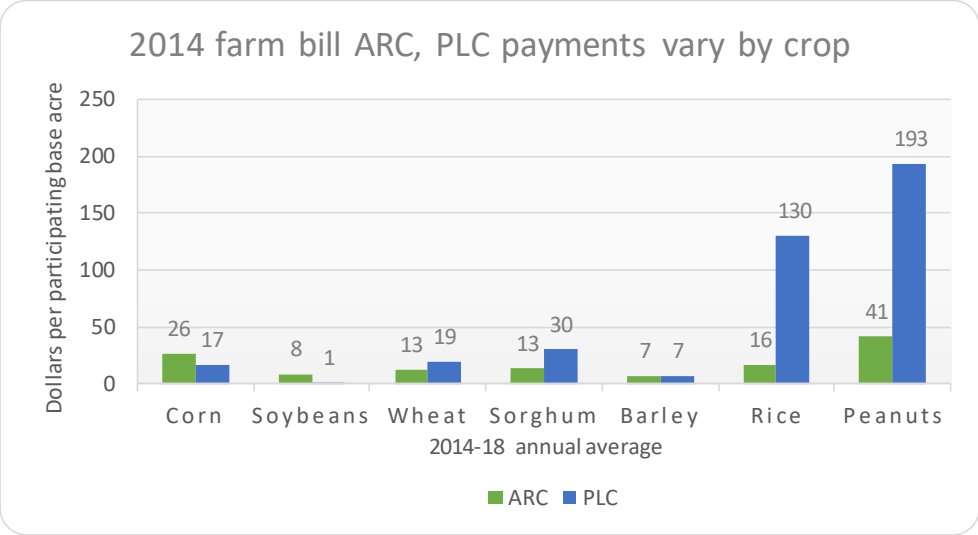
Other policy assumptions

Policy	Description
Dairy margin coverage (DMC)	Milk producers receive payments when the margin between milk prices and an indicator of feed prices falls below coverage levels chosen by the producer. Producers pay premiums, with much lower premiums on the first 5 million pounds of milk than on additional quantities.
Conservation reserve	Maximum allowed enrollment increases to 27 million acres by 2023. Maximum rental rate is 85% of county average rental rate for general signups and 90% of county average rental rate for continuous signups.
Trade policies	Trade policies in place in February 2019 continue. This includes a continuation of retaliatory tariffs by China and other countries imposed in 2018. North American Free Trade Agreement provisions continue (ratification of United States-Mexico-Canada Agreement is not assumed).

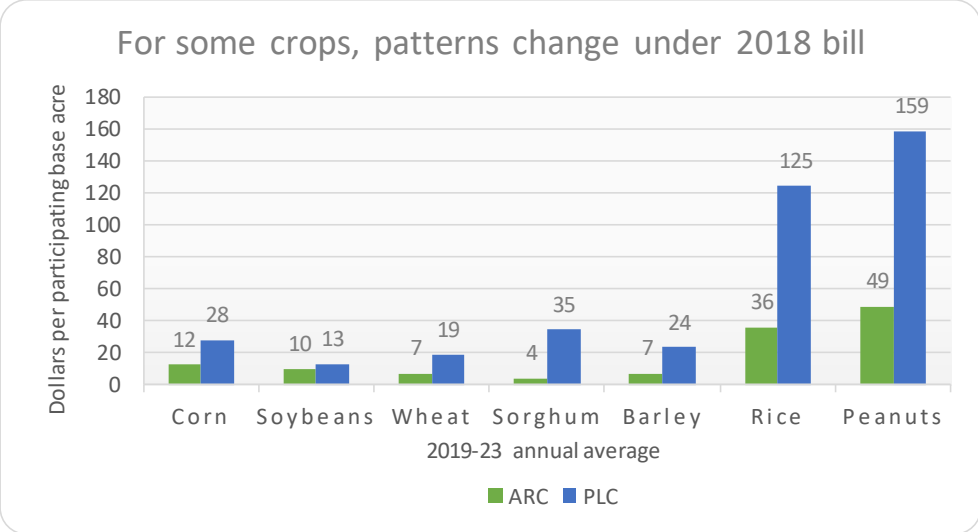
Note: These policy assumptions are not a prediction of future policy outcomes. Alternative policy scenarios can be evaluated against this current policy baseline.

Crop program participation

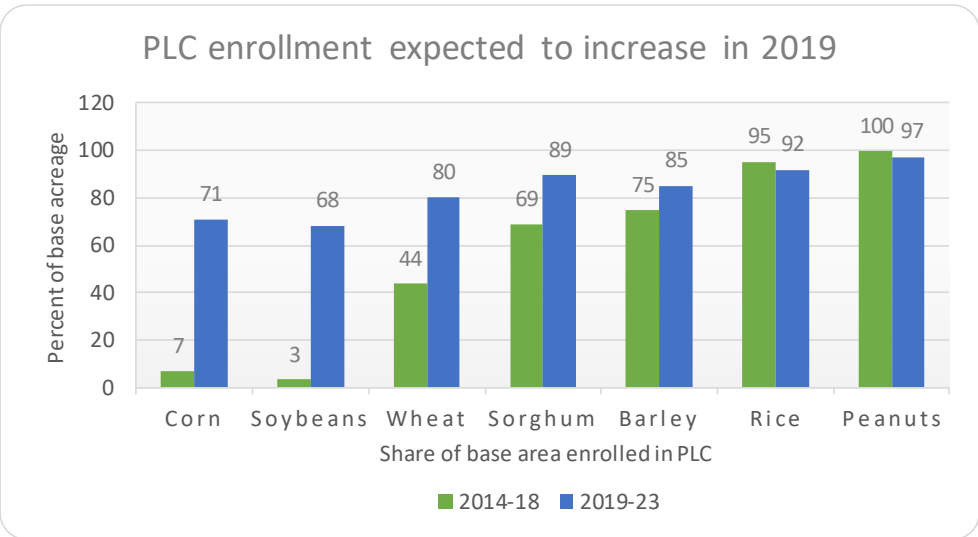
Under the 2014 farm bill, producers made a one-time election of ARC or PLC for each crop for the 2014-2018 crop years. Based on actual data for 2014-17 and projected data for 2018, corn and soybean average ARC payments per base acre are larger over the 2014-18 period than average projected PLC payments. The reverse is true for wheat, sorghum, rice and peanut base acreage.



For corn and soybeans, projected ARC payments decline as the moving average of prices used to set the ARC benchmark adjusts to the lower prices of recent years. Projected average ARC payments per participating base acre are less than projected PLC payments for all the major crops for 2019-2023. Note that these estimates are averages across 500 outcomes; in any given year, payments could be zero or much larger than these averages.



The 2018 farm bill gives producers the opportunity to make new ARC-PLC elections in 2019, 2021, 2022 and 2023. We assume producers will make choices based in part on expected payment rates for the two programs. This suggests a significant shift from ARC to PLC, especially for producers with corn, soybean and wheat base acreage. Actual enrollment choices will depend on a wide range of factors, including market price expectations at the time elections are made.

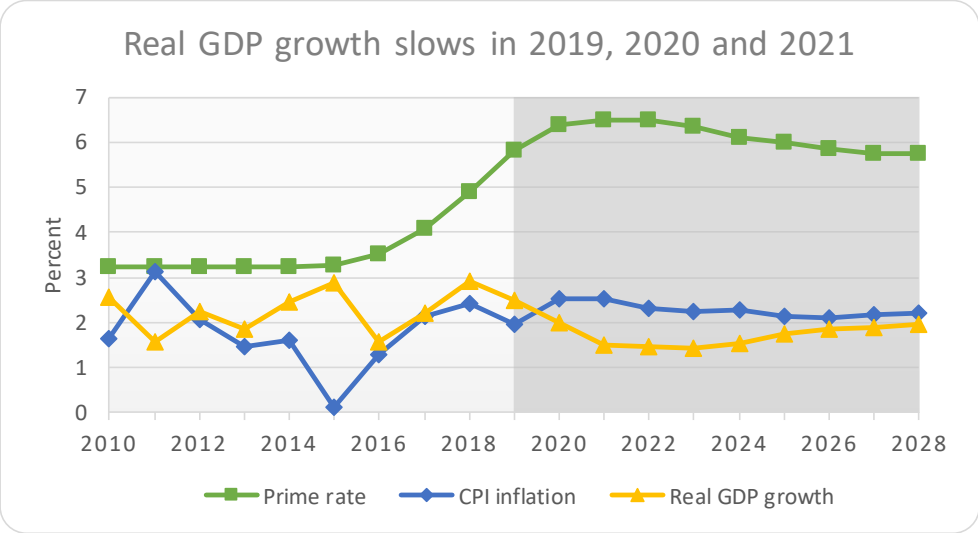


ARC and PLC payments and participation rates

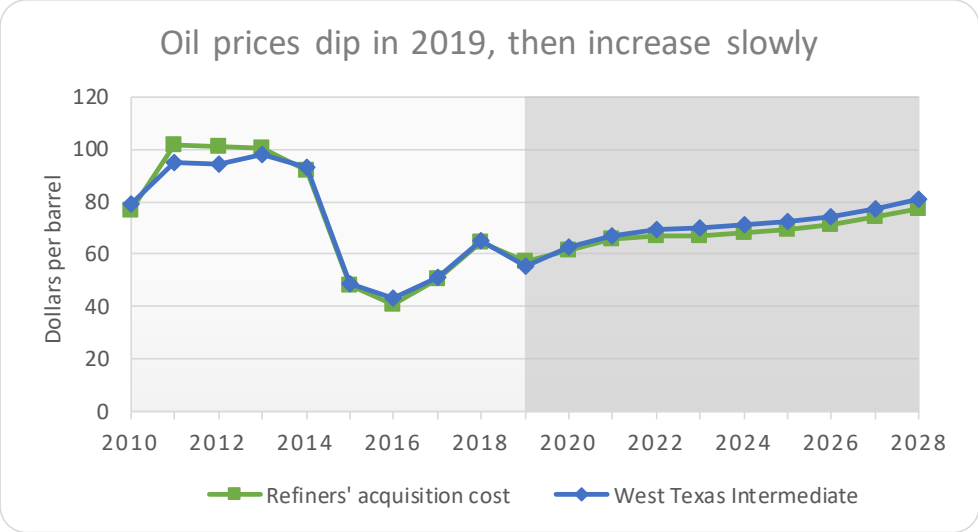
	Average ARC payment	Average PLC payment	Share of base acres in: ARC	PLC
Average for 2014-2018 crop years	(Dollars per base acre)		(Percent)	
Corn	25.92	16.65	92.9	7.1
Soybeans	8.37	0.59	96.8	3.2
Wheat	12.62	19.49	56.2	43.8
Sorghum	13.06	30.14	31.3	68.7
Barley	7.12	6.67	25.3	74.7
Oats	8.42	4.49	66.3	33.7
Rice	16.36	130.11	4.8	95.2
Peanuts	41.21	192.96	0.3	99.7
Sunflower seed	8.57	20.28	43.7	56.3
Average for 2019-2023 crop years				
Corn	12.45	28.04	29.2	70.8
Soybeans	9.95	13.26	31.8	68.2
Wheat	7.31	18.99	19.7	80.3
Sorghum	4.38	34.66	10.6	89.4
Barley	7.27	23.52	14.9	85.1
Oats	1.35	3.61	28.6	71.4
Rice	36.28	124.74	8.0	92.0
Peanuts	49.26	158.94	2.6	97.4
Sunflower seed	12.04	31.84	10.6	89.4

Macroeconomic assumptions and farm prices paid

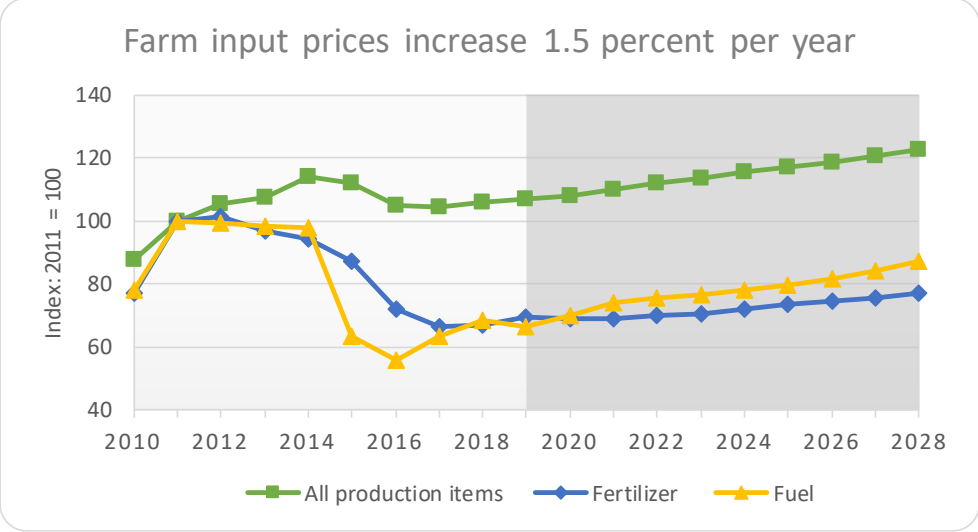
The U.S. economy grew by almost 3 percent in 2018. In January 2019, IHS Markit forecasted slower U.S. economic growth ahead, with annual real GDP growth dropping below 2 percent by 2021. Projected inflation averages 2.2 percent over the next ten years. The prime lending rate peaks at 6.5 percent in 2021 and 2022.



The baseline adopts IHS Markit's forecast of crude oil prices. After dipping in 2019, oil prices increase at a modest rate with West Texas Intermediate oil reaching $80 per barrel again by 2028. Futures markets in early April imply higher prices in 2019 and lower prices in later years. Higher oil prices increase farm production costs and can affect demand for biofuels.



Lower fuel and fertilizer prices helped reduce the index of farm production input prices in 2015 and 2016. Higher prices for fuel and other inputs contribute to a 1.5 percent per year increase in farm input prices from 2019-2028.



Macroeconomic assumptions

Calendar year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Real GDP growth					(Percent change from previous year)						
United States	2.9	2.5	2.0	1.5	1.5	1.4	1.5	1.7	1.8	1.9	2.0
China	6.6	6.3	6.0	5.9	5.8	5.7	5.7	5.6	5.5	5.4	5.1
World	3.2	2.9	2.8	2.8	2.8	2.9	3.0	3.0	3.1	3.1	3.0
Population growth											
United States	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6
World	1.1	1.1	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9
U.S. CPI, all urban consumers	2.4	2.0	2.5	2.5	2.3	2.2	2.3	2.1	2.1	2.2	2.2
					(Percent)						
U.S. unemployment rate	3.9	3.6	3.7	3.9	4.1	4.3	4.5	4.6	4.6	4.6	4.6
3-month Treasury bill rate	1.9	2.6	2.8	2.9	2.9	2.8	2.5	2.4	2.4	2.4	2.4
Prime interest rate	4.9	5.8	6.4	6.5	6.5	6.4	6.1	6.0	5.9	5.7	5.8
Petroleum prices					(Dollars per barrel)						
West Texas Intermediate	64.87	55.40	62.62	67.25	69.61	70.12	71.27	72.62	74.19	77.35	80.99
Refiners' acquisition cost	64.63	57.17	61.76	65.96	67.03	67.26	68.30	69.63	71.15	74.07	77.58
Natural gas price					(Dollars per million BTU)						
Henry Hub	3.19	2.78	2.51	2.71	2.74	3.01	3.43	3.51	3.54	3.69	3.97
Exchange rates					(Currency per dollar)						
Euro	0.85	0.89	0.91	0.90	0.86	0.83	0.81	0.80	0.79	0.79	0.78
Chinese yuan	6.62	6.87	6.93	7.02	7.02	6.92	6.83	6.75	6.70	6.69	6.70

Source: IHS Markit, January 2019

Indices of prices paid by farmers

Calendar year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Production items, interest,						(2011=100)					
taxes and wages	108.5	109.8	111.5	113.7	115.9	118.1	120.3	122.3	124.3	126.5	128.9
Production items	106.0	106.9	108.2	110.0	111.9	113.7	115.5	117.1	118.7	120.5	122.5
Feed	98.2	98.0	99.9	100.1	100.2	100.2	100.1	100.1	100.2	100.4	100.5
Livestock & poultry	105.9	104.4	99.3	103.2	107.1	112.2	115.6	117.7	119.2	120.9	123.0
Seeds	118.5	119.3	121.3	123.6	125.9	127.9	129.7	131.5	133.4	135.5	137.8
Fertilizer	66.7	69.3	69.0	69.0	70.2	70.5	72.2	73.7	74.4	75.4	77.3
Mixed fertilizer	67.6	69.6	69.7	70.0	71.1	71.4	73.0	74.3	75.0	76.0	77.9
Nitrogen fertilizer	67.0	70.2	69.3	68.3	69.7	70.0	72.0	74.2	75.1	76.0	77.9
Potash and phosph.	62.9	65.1	66.1	67.8	68.6	68.7	69.7	69.9	70.2	71.4	73.2
Agricultural chemicals	103.5	102.2	104.8	107.3	109.7	111.9	114.1	116.3	118.7	121.2	123.9
Fuels	68.2	66.4	69.9	73.9	75.5	76.6	78.2	79.8	81.5	84.1	87.2
Supplies & repairs	111.5	114.4	117.1	119.9	122.8	125.8	128.9	132.1	135.2	138.3	141.6
Autos & trucks	105.5	105.7	106.2	106.8	107.6	108.3	109.1	109.9	110.8	111.8	112.9
Farm machinery	118.9	121.7	124.5	126.3	128.3	130.4	132.7	135.1	137.7	140.3	143.1
Building material	116.1	118.8	121.2	123.1	124.7	126.3	127.9	129.7	131.7	133.7	135.8
Farm services	114.5	116.3	119.6	123.0	126.4	129.7	132.9	136.2	139.7	143.3	147.1
Interest*	118.7	123.9	128.1	131.2	133.9	136.3	138.1	140.4	142.8	145.3	148.3
Taxes**	117.1	119.8	124.3	127.6	130.9	133.7	136.9	140.4	144.1	147.8	151.8
Wage rates	126.3	130.3	134.8	139.7	145.0	150.4	155.8	161.3	166.8	172.4	178.2

* Interest per acre on farm real estate debt and interest rate on farm non-real estate debt.

** Farm real estate taxes payable per acre.

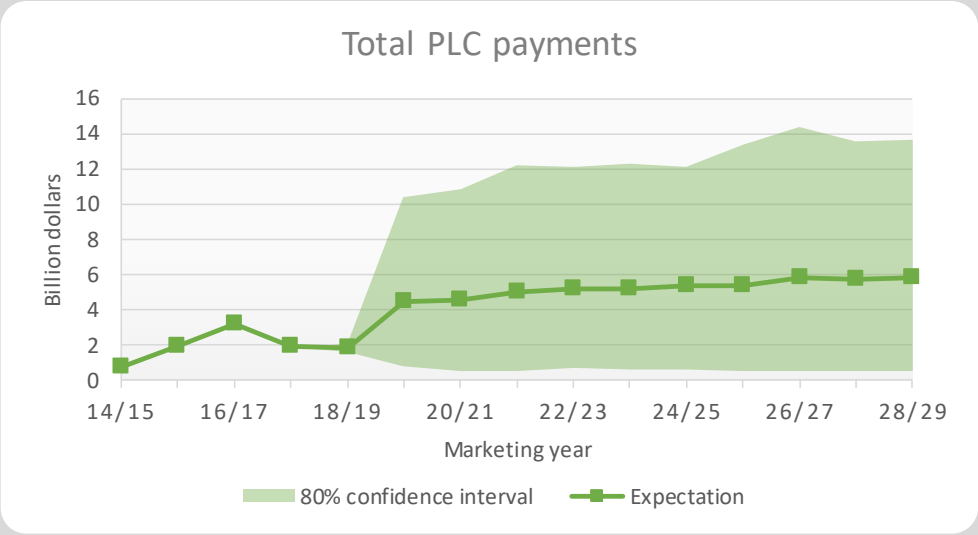
The Stochastic Baseline

This baseline is constructed to incorporate the uncertainty of projections. Any estimate of the future has a random component that can not be known ahead of time. As a result, a subset of the variables is allowed to be stochastic. This means that they contain a random effect. Since the models are interconnected, this leads to variability throughout the system. It is impossible to capture all uncertainty. Therefore, the stochastic baseline should not be treated as thoroughly capturing all risk.

While the tables present one number for each variable, there is actually a distribution behind each. Many of the paths for the variables appear flat as if there is little year over year change. The charts and tables generally present the expectation for each year, which is the mean of the distribution. In reality, our models approximate an infinite number of outcomes.

The stochastic nature of the baseline can lead to interesting results. Consider the Price Loss Coverage (PLC) program that makes payments when the farm price falls below a reference price. Our expected farm price may be above the reference price. However, there is some probability that the price may fall below the reference price in the future. All of these outcomes determine the expected PLC payments. As a result, our tables may show an expected PLC payment even when the expected farm price is above the reference price.

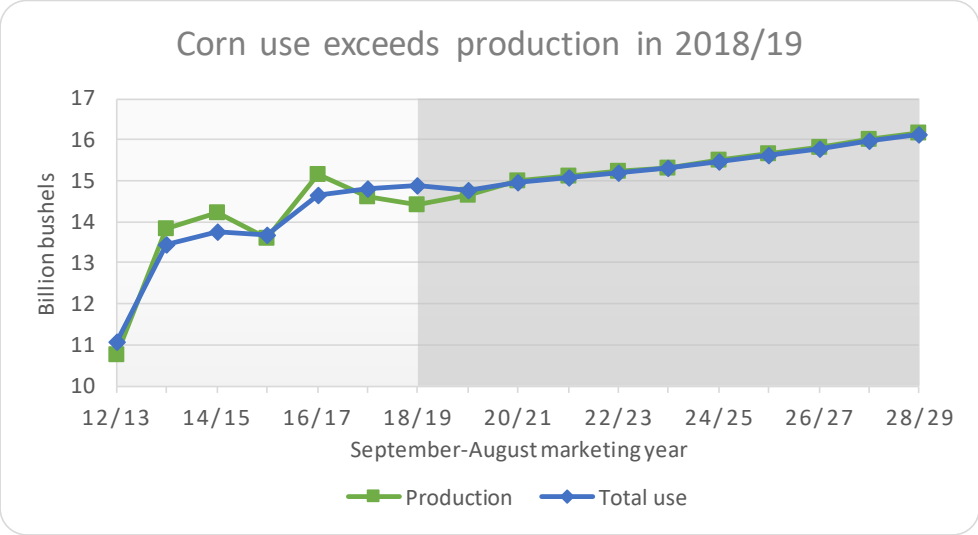
Anytime the farm price is above the reference price, the PLC payment is zero. However, if the inverse is true then the payment rate has a one-to-one relationship with the farm price. This creates an asymmetry in the distribution of PLC payments as the lower tail is limited at zero while the upper tail can be quite high. The Aggregate Indicators section includes a table with confidence interval information for several select variables.



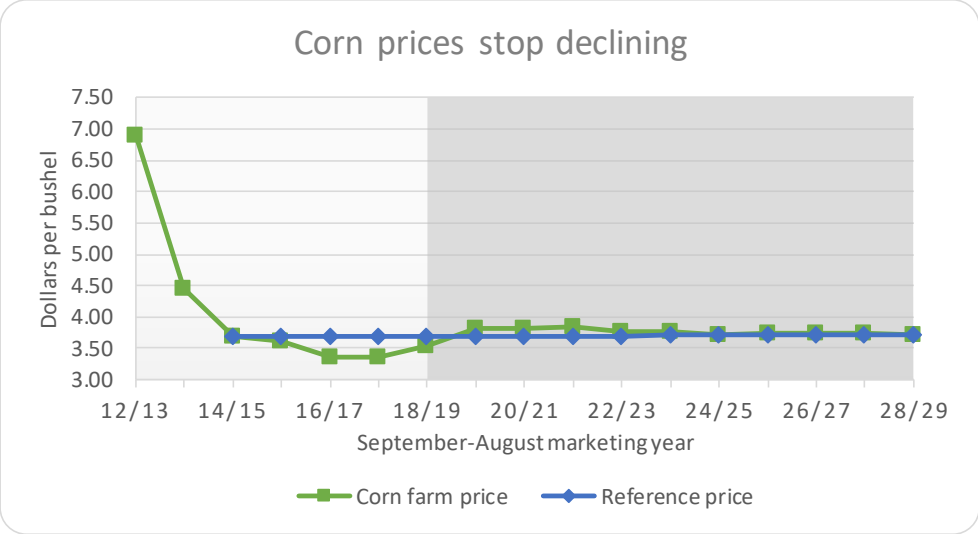
Grains

Corn

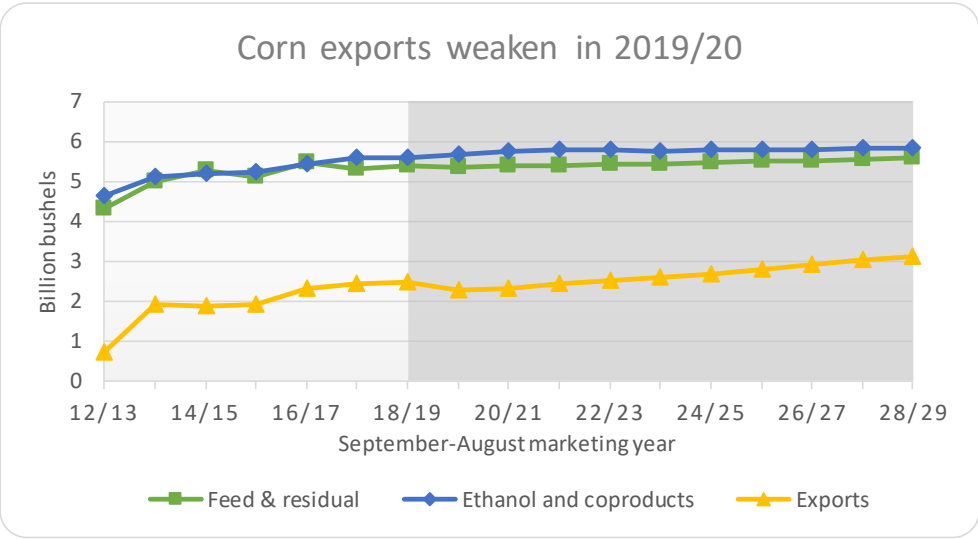
U.S. corn production fell for the second straight year in 2018, with small reductions in both area and yield. The result is a reduction in projected carryover stocks, as expected use exceeds production. In 2019/20 and later years, use and production increase in tandem, with yield growth accounting for most of the increase in production.

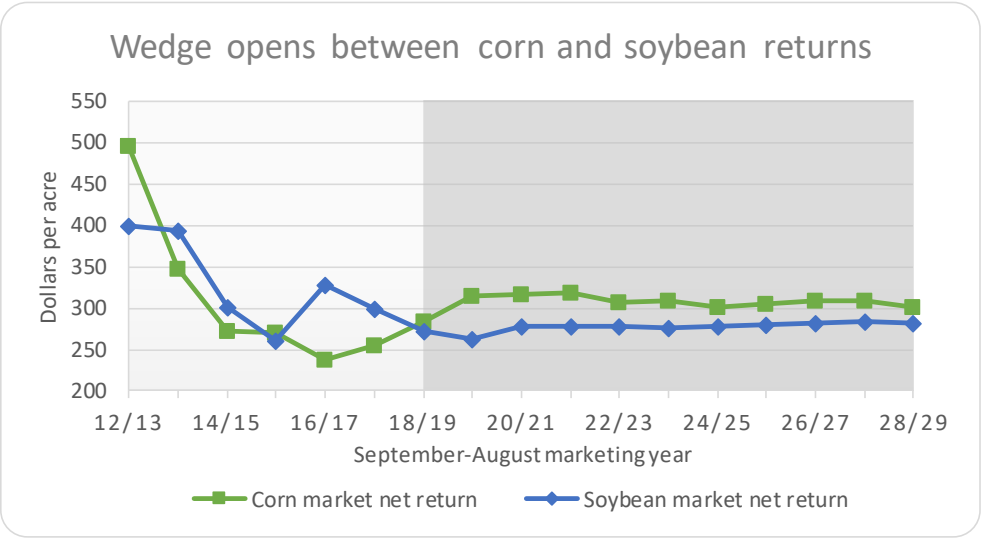


The drawdown in corn ending stocks helps raise corn farm prices. Crop year 2018/19 is the first year that the season average farm price has moved upwards since the 2012 drought. Even so, the 2018/19 price of $3.53 is below the reference price of $3.70 that triggers PLC payments. If yields return to trend, farm prices should exceed the reference price in 2019/20.

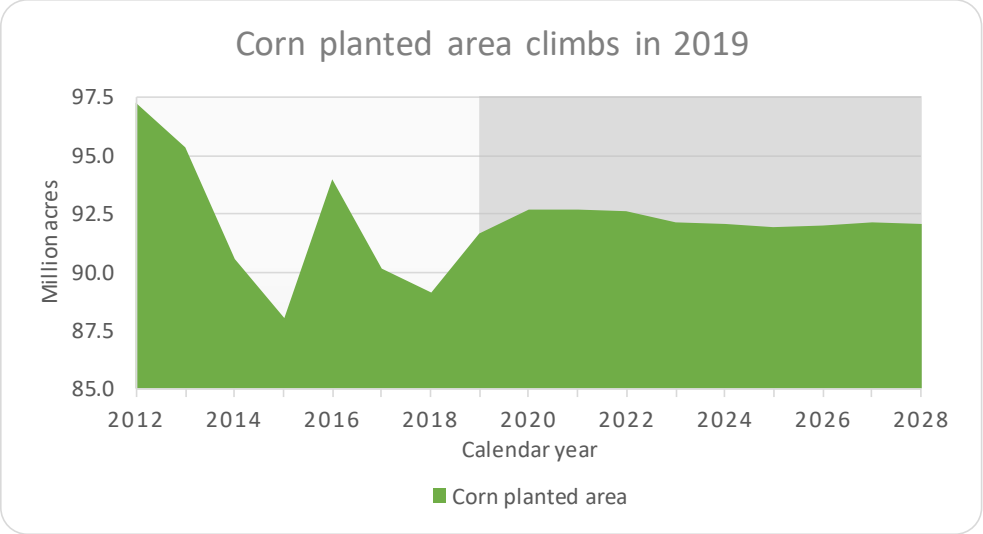


Increased competition from South America reduces projected corn exports in 2019/20, but growth in global demand results in steady increases in later years. Ethanol and coproduct use increases slightly in 2019/20 and 2020/21 with increased exports and domestic use of ethanol..

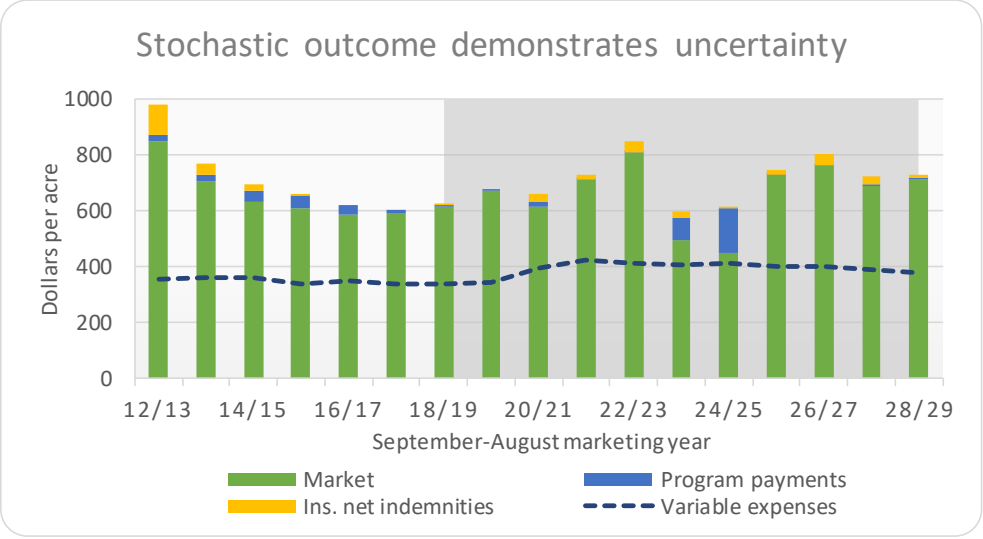




Market net returns equal market revenues minus operating expenses. The metric does not include crop insurance or government payments. Soybean market net returns have generally exceeded those of corn during the past five years. As Chinese tariffs have hit soybeans much harder than corn, profits for corn surpass those for soybeans.



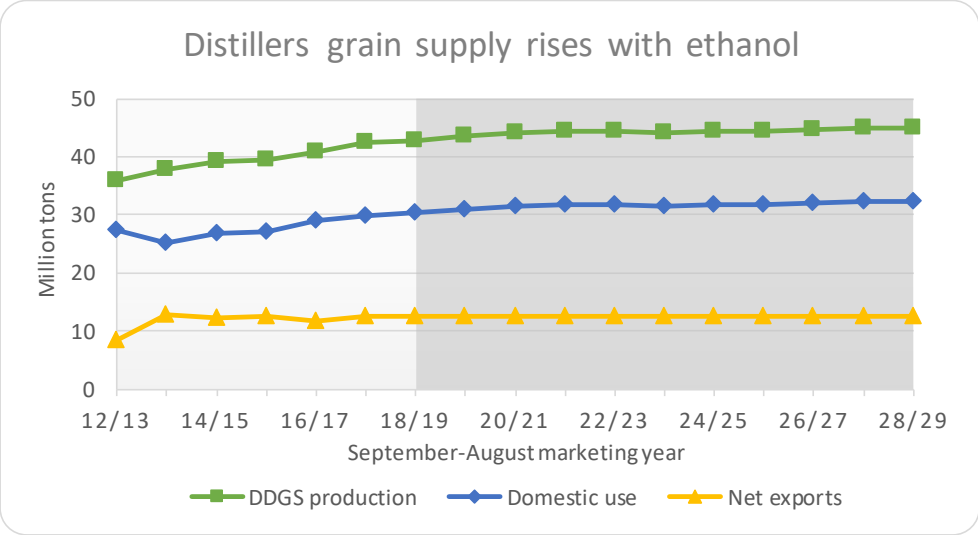
The baseline has corn area increasing by over 2.5 million acres from 2018 to 91.7 million acres this year due to the increased profitability of corn relative to competing crops. The USDA prospective plantings report has 92.8 million acres intended to be planted in 2019. Much of the increase is in the Northern Plains which have seen a significant increase in soybean basis due to interim loss of the Chinese market.



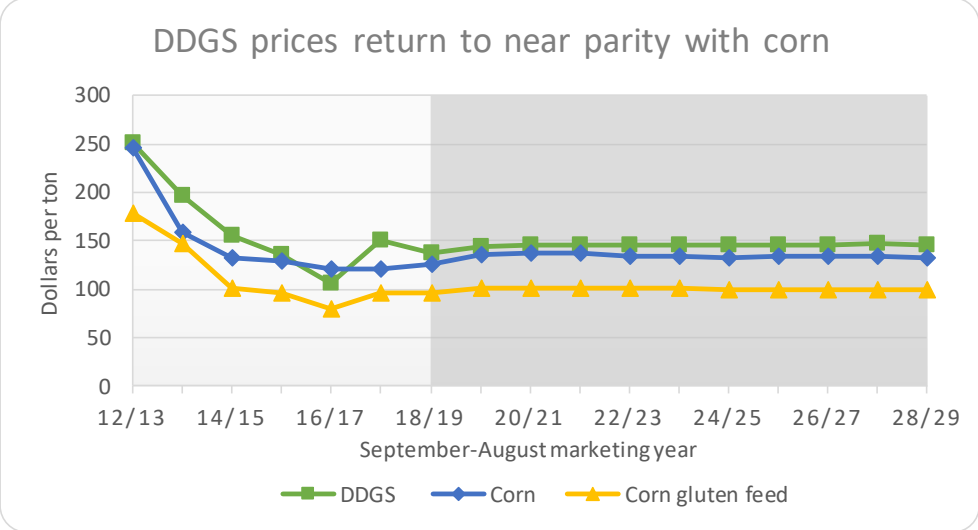
The tables show the average of a distribution of potential outcomes. Any one of the outcomes is more volatile than the average. Shown here is outcome 469 of 500. The chart demonstrates the profitability risk. Crop year 2022/23 in outcome 469 has an operating margin of over $450, while the next year has $200 to cover overhead, including land rent.

Corn milling products

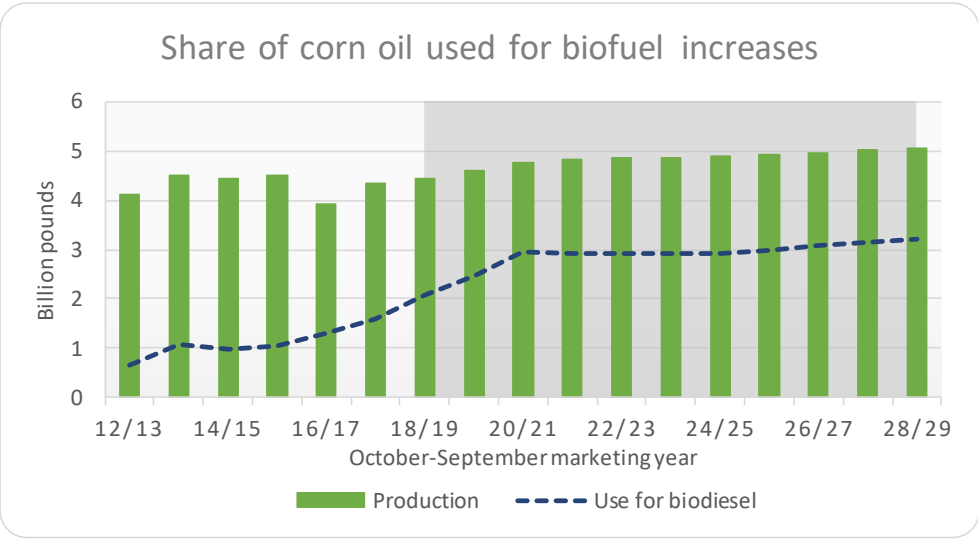
Distillers dried grains with solubles (DDGS) production follows the trajectory of dry mill ethanol production and averages about 44 million tons over the projection period. Most of this supply is absorbed by domestic use as a livestock feed. DDGS net exports remain roughly constant in the projection period.

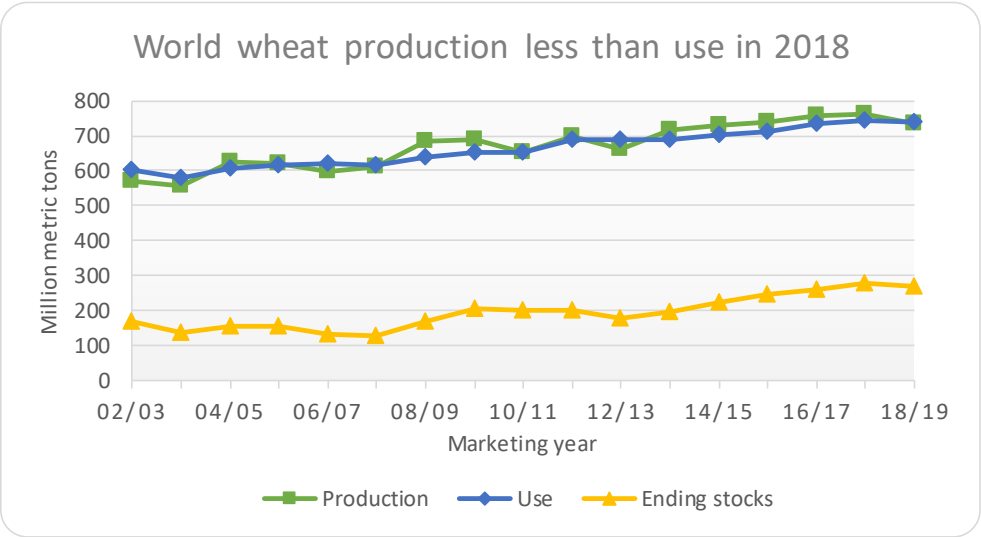


Prices for DDGS are projected to fall slightly in 2018/19 before rising alongside corn prices the following year. Over the course of the projection period, DDGS prices are just higher than parity with corn at $145 per ton on average. The ratios of other corn product prices (e.g. corn gluten feed and corn gluten meal) to the corn price are also estimated to remain stable.



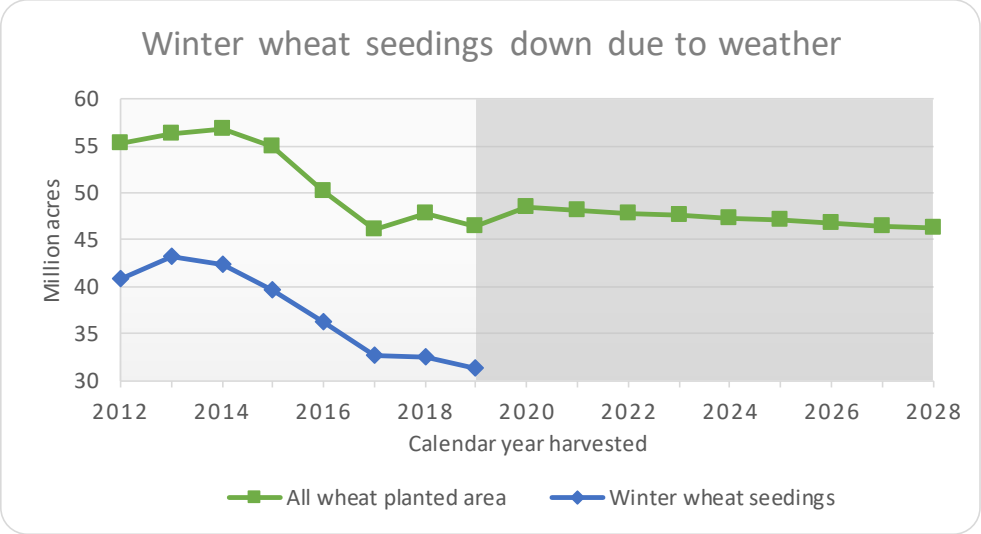
Total corn oil production is estimated to increase over the projection period to a little over 5 billion pounds. However, the growth slows over time. The share of corn oil used for biodiesel production rises over time. Other uses experience a slight decline.



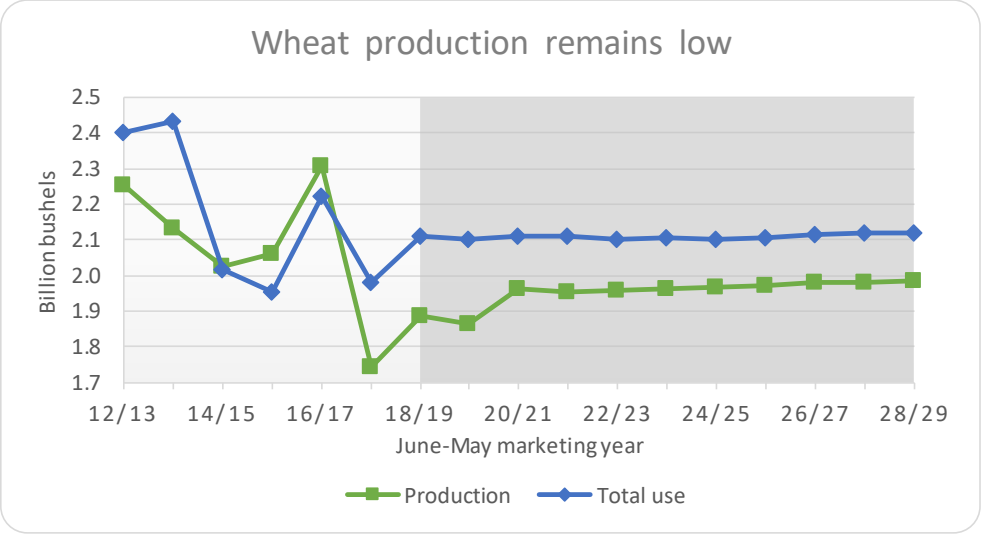


Wheat

World wheat production exceeded use from 2013/14 to 2017/18 due to high yields. A decrease in area and lower yields in 2018/19 reversed the constant upwards movement of world wheat production. About half of the drop occurred in the European Union. Even so, wheat world ending stocks remain at very high levels.



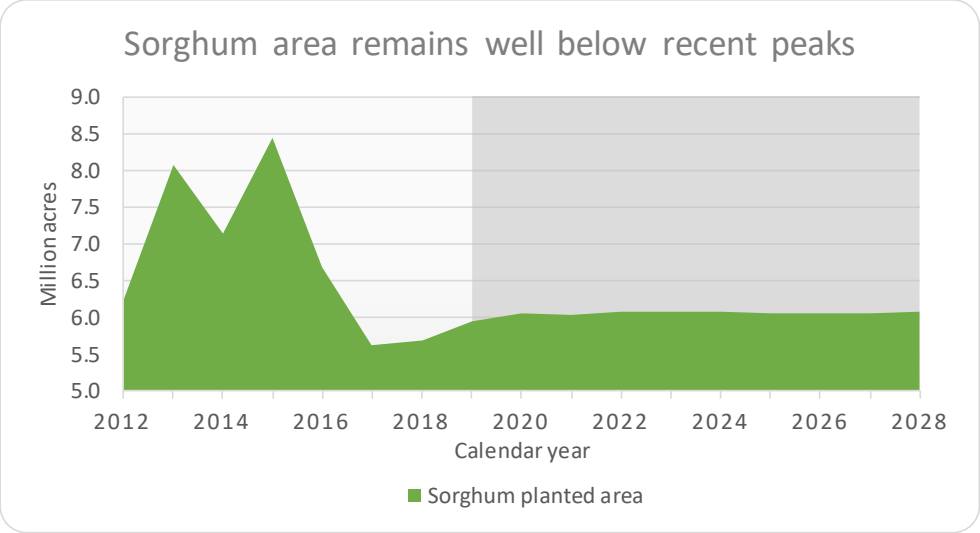
Poor planting conditions lowered 2019 winter wheat seedings despite high prices for winter wheat. This, combined with low spring wheat prices, pushes area down in 2019. The baseline has 2019 wheat plantings falling slightly to 47.3 million acres. Planting intentions are even lower at 45.8 million acres. This number would be the lowest all wheat plantings ever recorded.



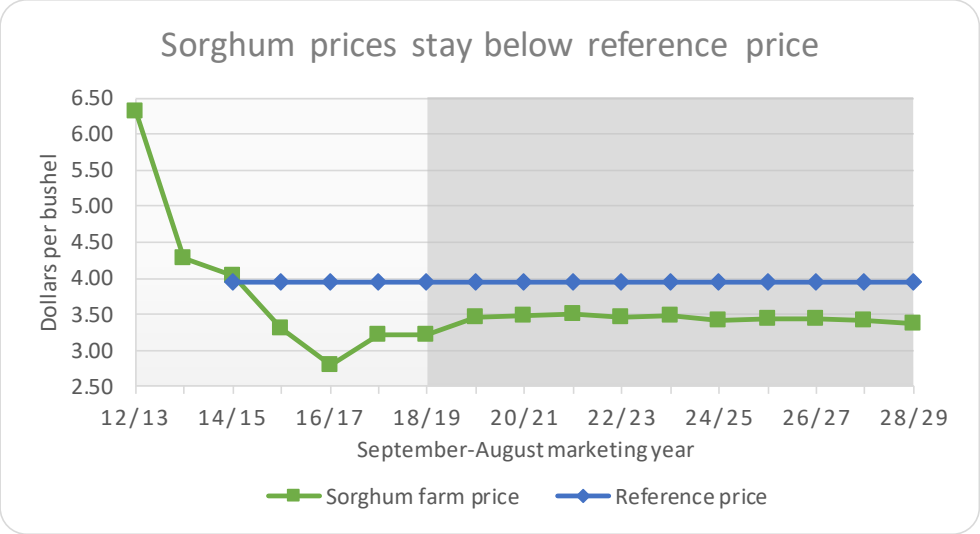
Total use of U.S. wheat is projected to be stable over the next decade at about 2.1 billion bushels, as a slight increase in domestic food use is offset by a small decline in U.S. exports. The projected increase in wheat area in 2020 results in a corresponding increase in production. Imports and stock changes account for the difference between production and use.

Sorghum

Sorghum area fell sharply from 2015 to 2017 as sorghum prices declined by larger amounts than competing crops. Since then, sorghum prices have remained low. Lower soybean prices due to trade issues could pull a few acres into sorghum at the margins.

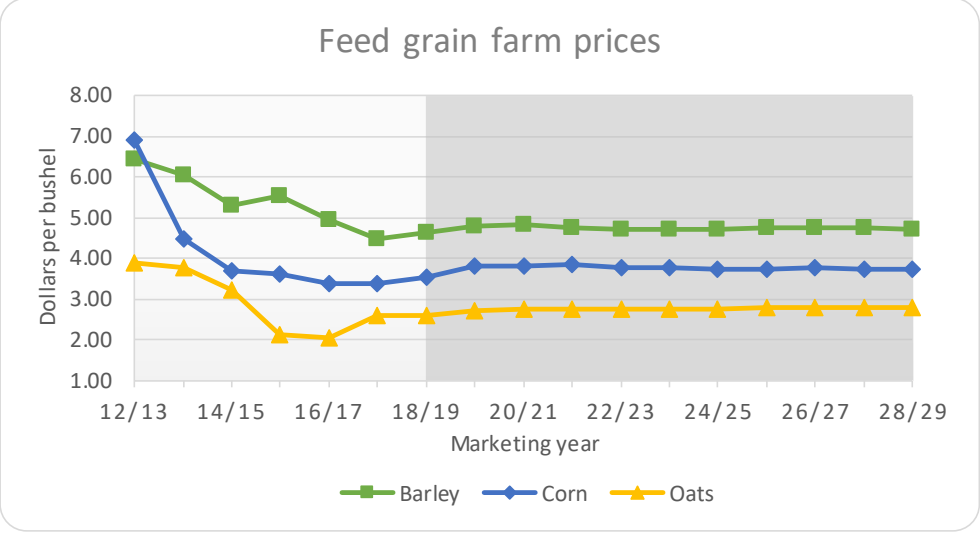


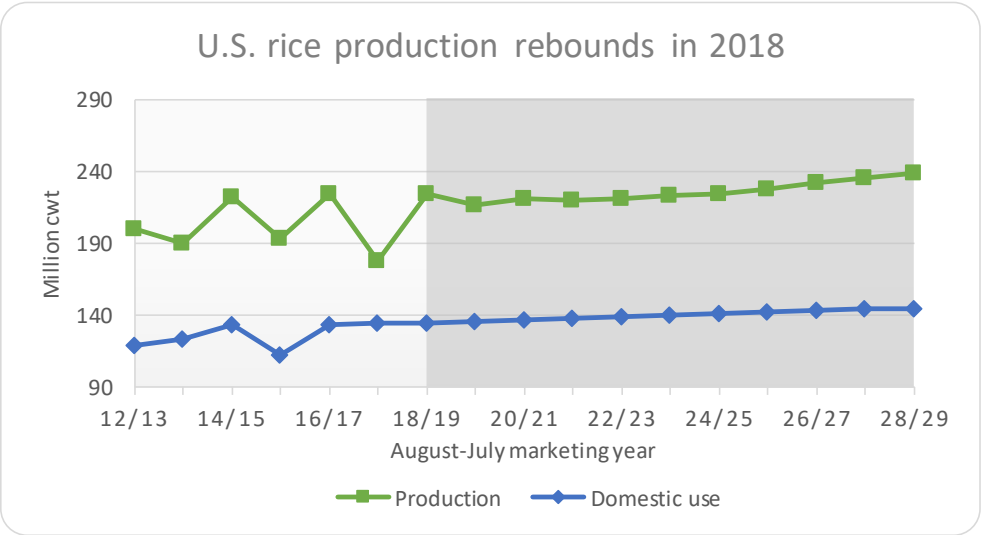
Average 2016/17 sorghum prices were down 55 percent from the 2012/13 peak. Although some recovery is occurring, lower grain prices keep the average farm price below the reference price every year in the baseline. This generates average annual PLC payments in the $35 to $40 range per participating base acre.



Barley and oats

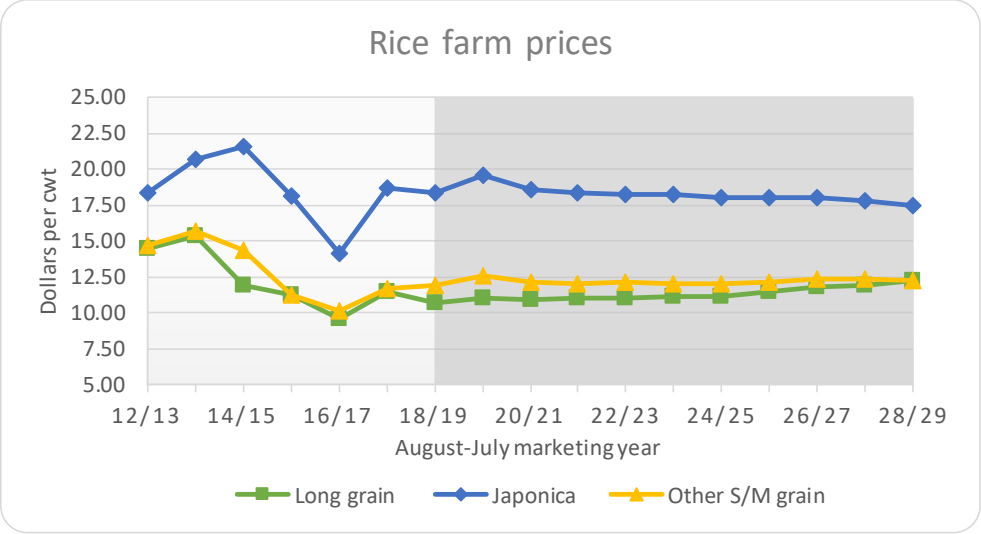
Barley prices have exceeded corn prices since 2012/13. High malting barley prices had helped mitigate the drop in barley acreage, but those prices have weakened. The U.S. continues to be a large net importer of oats.





Rice

U.S. rice production in 2016 was bolstered by an increase in acreage of long grain rice. The area in 2017 fell due to lower prices from large stocks. High yields in 2017 helped buffer production from the drop in area. Area and yields both increased in 2018. Use continues to grow with the population.



A large U.S. crop, rising stocks, and lower international prices have all contributed to lower U.S. long-grain rice prices in 2018/19. Projected prices are well below the $14 per cwt reference price for long-grain rice, generating per-acre PLC payments that are larger than for most other crops. Japonica rice prices are projected to increase in 2019/20, but then decline.

Corn supply and use

September-August year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Area					(Million acres)						
Planted area	89.1	91.7	92.7	92.7	92.6	92.1	92.1	92.0	92.0	92.2	92.1
Harvested area	81.7	84.2	85.2	85.1	85.1	84.6	84.6	84.4	84.5	84.6	84.5
					(Bushels per harvested acre)						
Yield	176.4	173.8	175.9	177.7	179.2	181.0	183.2	185.2	187.1	189.2	191.3
					(Million bushels)						
Supply	16,599	16,394	16,650	16,860	17,061	17,212	17,444	17,660	17,891	18,157	18,395
Beginning stocks	2,140	1,723	1,629	1,700	1,773	1,852	1,900	1,980	2,038	2,102	2,176
Production	14,420	14,633	14,982	15,121	15,249	15,321	15,505	15,642	15,814	16,017	16,181
Imports	38	38	38	38	38	38	38	38	38	38	38
Domestic use	12,422	12,501	12,624	12,668	12,716	12,722	12,786	12,836	12,896	12,967	13,035
Feed and residual	5,373	5,344	5,378	5,380	5,417	5,430	5,471	5,493	5,524	5,563	5,596
Ethanol and coproducts	5,581	5,682	5,756	5,784	5,781	5,762	5,771	5,787	5,803	5,824	5,845
HFCS	457	456	458	458	457	455	454	453	452	452	451
Seed	30	31	31	32	32	32	32	33	33	33	33
Food and other	980	988	1,001	1,015	1,029	1,043	1,057	1,070	1,083	1,096	1,110
Exports	2,454	2,264	2,325	2,419	2,493	2,589	2,678	2,787	2,893	3,013	3,103
Total use	14,876	14,765	14,950	15,087	15,209	15,311	15,464	15,622	15,789	15,980	16,138
Ending stocks	1,723	1,629	1,700	1,773	1,852	1,900	1,980	2,038	2,102	2,176	2,257
CCC inventory	0	0	0	0	0	0	0	0	0	0	0
Under loan	150	176	181	185	190	191	197	198	200	202	208
Other stocks	1,572	1,453	1,519	1,588	1,662	1,710	1,783	1,840	1,902	1,974	2,050
Prices, program provisions					(Dollars per bushel)						
Farm price	3.53	3.81	3.82	3.83	3.77	3.77	3.72	3.74	3.75	3.75	3.71
Loan rate	1.95	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
Reference price	3.70	3.70	3.70	3.70	3.70	3.71	3.71	3.71	3.71	3.71	3.71
					(Million acres)						
Base area	95.4	93.6	93.6	93.6	93.5	93.5	93.5	93.5	93.5	93.5	93.5
					(Bushels per acre)						
PLC program yield	116.2	135.3	135.3	135.4	135.5	135.4	135.2	135.2	135.2	135.3	135.4
					(Percent of base acres)						
PLC participation rate	6.8	70.1	70.1	71.0	71.7	71.1	69.8	69.6	69.6	70.3	70.8
ARC participation rate	93.2	29.9	29.9	29.0	28.3	28.9	30.2	30.4	30.4	29.7	29.2
Returns and payments					(Dollars)						
Gross market revenue/a.	622.98	657.33	667.04	674.53	669.11	677.24	676.73	687.16	695.90	703.12	704.21
Variable expenses/a.	340.08	343.38	350.82	356.35	362.86	368.27	374.73	381.58	387.76	394.31	402.47
Market net return/a.	282.89	313.95	316.22	318.19	306.25	308.97	302.00	305.59	308.14	308.80	301.75
Marketing loan benefits/a.*	0.00	0.12	0.21	0.43	1.17	0.81	0.90	0.56	0.87	0.86	1.06
Payments to participants											
PLC/base a.*	15.57	23.40	25.59	29.12	30.33	31.76	34.05	34.70	35.06	33.38	34.51
ARC/base a.*	4.83	10.04	10.64	11.89	14.42	15.24	17.71	17.02	17.12	17.74	18.48
Insurance net indemnities/a.*	1.84	19.72	21.31	22.92	24.54	25.65	26.38	26.61	27.59	27.75	27.72

* Marketing loan benefits and insurance net indemnities are averaged across all acres. PLC and ARC payments are per participating acre.
All projections are averages across 500 stochastic outcomes.

Corn product supply and use

Marketing year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
High-fructose corn syrup					(Thousand tons, Oct.-Sep. year)						
Production	8,239	8,235	8,284	8,299	8,298	8,292	8,287	8,278	8,288	8,290	8,290
Domestic use	6,919	6,823	6,798	6,755	6,663	6,567	6,478	6,369	6,276	6,168	6,043
Net exports	1,319	1,412	1,486	1,544	1,635	1,726	1,809	1,908	2,011	2,122	2,247
					(Cents per pound, Oct.-Sep. year)						
Price, 42% Midwest	32.80	33.58	34.51	35.05	35.39	36.08	36.46	36.96	37.62	38.17	38.69
HFCS price/ref. sugar price	100%	102%	103%	104%	106%	108%	110%	112%	114%	117%	120%
Distillers, brewers grains					(Thousand tons, Sep.-Aug. year)						
Production (dry equiv.)	42,841	43,505	44,106	44,335	44,337	44,213	44,319	44,493	44,665	44,860	45,041
Domestic use	30,341	30,938	31,530	31,745	31,749	31,624	31,729	31,893	32,061	32,246	32,409
Net exports	12,499	12,566	12,576	12,589	12,587	12,588	12,590	12,600	12,605	12,614	12,632
					(Dollars per ton, Sep.-Aug. year)						
Price, IL points	138.02	144.02	145.27	145.44	144.87	145.52	144.95	145.73	146.22	146.34	145.11
DDGS price/corn price	109%	106%	106%	106%	108%	108%	109%	109%	109%	109%	110%
Corn gluten feed					(Thousand tons, Sep.-Aug. year)						
Production	8,896	8,834	8,897	8,948	8,983	9,010	9,046	9,067	9,094	9,131	9,181
Domestic use	7,736	7,705	7,785	7,853	7,903	7,951	8,004	8,047	8,096	8,153	8,220
Net exports	1,160	1,129	1,112	1,096	1,080	1,059	1,041	1,019	998	978	961
					(Dollars per ton, Sep.-Aug. year)						
Price, 21%, IL points	95.81	100.81	101.23	101.17	100.30	100.40	99.63	99.93	100.01	99.88	98.87
CGF price/corn price	76%	74%	74%	74%	75%	75%	75%	75%	75%	75%	75%
Corn gluten meal					(Thousand tons, Sep.-Aug. year)						
Production	2,341	2,325	2,341	2,355	2,364	2,371	2,381	2,386	2,393	2,403	2,416
Domestic use	1,445	1,422	1,429	1,431	1,430	1,427	1,426	1,421	1,418	1,418	1,420
Net exports	896	903	912	924	934	945	955	965	975	985	996
					(Dollars per ton, Sep.-Aug. year)						
Price, 60%, IL points	449.45	461.26	470.26	469.45	473.99	474.42	476.37	476.98	477.29	478.50	476.27
CGM price/soymeal price	149%	148%	148%	148%	147%	147%	147%	147%	147%	147%	147%
Corn oil					(Million pounds, Oct.-Sep. year)						
Production	4,443	4,605	4,754	4,834	4,868	4,876	4,906	4,937	4,971	5,011	5,049
Domestic use	3,568	3,739	3,885	3,958	3,986	3,992	4,018	4,047	4,078	4,116	4,151
Biodiesel	2,081	2,478	2,955	2,911	2,909	2,916	2,931	2,998	3,075	3,149	3,208
Feed	1,420	831	719	824	867	870	850	813	754	702	663
Food/other	67	430	210	222	210	206	237	236	249	265	280
Net exports	869	863	864	870	876	881	885	887	890	893	896
Ending stocks	123	125	130	136	142	144	147	150	152	154	157
					(Cents per pound, Oct.-Sep. year)						
Chicago price	41.15	43.37	44.57	44.31	43.41	42.84	42.57	42.46	42.30	42.33	42.36
Corn oil price/soyoil price	141%	140%	137%	136%	136%	136%	136%	135%	135%	134%	133%

All projections are averages across 500 stochastic outcomes.

Wheat supply and use

June-May year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Area					(Million acres)						
Planted area	47.8	46.5	48.5	48.1	47.8	47.6	47.3	47.0	46.8	46.5	46.3
Harvested area	39.6	39.3	41.0	40.6	40.3	40.1	39.9	39.6	39.5	39.2	39.0
					(Bushels per harvested acre)						
Yield	47.6	47.3	47.8	48.1	48.5	48.8	49.2	49.6	50.1	50.5	50.9
					(Million bushels)						
Supply	3,125	3,030	3,042	3,038	3,035	3,048	3,061	3,079	3,105	3,124	3,143
Beginning stocks	1,099	1,016	930	932	926	934	943	958	975	992	1,007
Production	1,884	1,862	1,961	1,954	1,957	1,962	1,966	1,969	1,979	1,981	1,985
Imports	142	152	152	152	151	151	151	152	152	152	152
Domestic use	1,108	1,151	1,161	1,164	1,168	1,171	1,172	1,171	1,177	1,180	1,183
Feed and residual	79	115	122	122	122	120	118	113	116	116	116
Seed	62	64	64	63	63	62	62	62	61	61	61
Food and other	968	972	975	979	984	988	992	996	1,000	1,003	1,007
Exports	1,001	949	949	947	932	934	931	933	936	937	935
Total use	2,110	2,100	2,110	2,112	2,100	2,104	2,103	2,104	2,113	2,118	2,119
Ending stocks	1,016	930	932	926	934	943	958	975	992	1,007	1,024
CCC inventory	0	0	0	0	0	0	0	0	0	0	0
Under loan	19	27	30	30	31	31	32	32	32	32	33
Other stocks	997	902	902	896	903	912	926	943	960	974	991
Prices, program provisions					(Dollars per bushel)						
Farm price	5.16	5.31	5.30	5.31	5.21	5.19	5.16	5.15	5.14	5.11	5.08
Loan rate	2.94	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38
Reference price	5.50	5.50	5.50	5.50	5.50	5.51	5.52	5.52	5.51	5.51	5.51
					(Million acres)						
Base area	62.8	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0
					(Bushels per acre)						
PLC program yield	38.0	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9
					(Percent of base acres)						
PLC participation rate	43.1	80.0	80.0	80.4	80.7	80.2	79.9	79.9	79.9	79.9	80.1
ARC participation rate	56.9	20.0	20.0	19.6	19.3	19.8	20.1	20.1	20.1	20.1	19.9
Returns and payments					(Dollars)						
Gross market revenue/a.	245.69	250.92	252.72	254.88	251.93	252.88	253.20	255.30	256.72	257.63	258.17
Variable expenses/a.	112.92	115.03	117.37	119.41	121.52	123.09	125.13	127.28	129.28	131.45	134.10
Market net return/a.	132.77	135.90	135.36	135.48	130.41	129.79	128.07	128.03	127.44	126.18	124.07
Marketing loan benefits/a.*	0.00	0.37	1.34	1.64	2.11	1.94	1.94	3.07	3.09	2.55	2.49
Payments to participants											
PLC/base a.*	10.12	15.27	18.11	19.86	21.06	20.64	21.54	22.28	22.41	23.27	23.39
ARC/base a.*	5.78	6.66	7.38	7.05	7.48	7.99	8.58	8.45	8.44	8.62	8.97
Insurance net indemnities/a.*	4.21	14.64	13.82	14.30	14.43	14.77	15.06	15.18	15.21	15.22	15.54

* Marketing loan benefits and insurance net indemnities are averaged across all acres. PLC and ARC payments are per participating acre.
All projections are averages across 500 stochastic outcomes.

Sorghum supply and use

September-August year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Area					(Million acres)						
Planted area	5.69	5.94	6.05	6.03	6.07	6.07	6.07	6.06	6.06	6.06	6.07
Harvested area	5.06	5.37	5.47	5.46	5.49	5.49	5.50	5.49	5.48	5.48	5.49
					(Bushels per harvested acre)						
Yield	72.1	69.6	69.9	70.1	70.3	70.4	70.9	71.2	71.4	71.7	71.9
Supply and use					(Million bushels)						
Production	365	376	384	385	387	388	392	393	393	394	397
Imports	1	1	1	1	1	1	1	1	1	1	1
Domestic use	237	233	232	231	229	229	232	232	232	234	237
Exports	113	146	152	154	158	159	160	161	161	160	160
Ending stocks	50	48	49	50	51	52	53	54	55	56	57
Prices, returns and payments					(Dollars)						
Farm price/bu.	3.22	3.45	3.48	3.50	3.46	3.47	3.42	3.42	3.44	3.42	3.37
Reference price/bu.	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95
Market net return/a.	102.44	106.43	106.48	105.47	101.67	100.28	95.39	94.65	93.06	90.80	84.71
Marketing loan benefits/a.*	0.00	0.41	1.04	1.47	1.77	1.74	1.79	1.85	1.96	1.78	2.20
Payments to participants											
PLC/base a.*	35.30	34.55	33.87	34.96	35.02	34.90	37.43	36.90	37.24	37.97	39.33
ARC/base a.*	3.81	3.35	2.62	5.09	5.23	5.59	5.72	5.25	5.45	5.66	5.80
Insurance net indemnities/a.*	5.84	17.24	18.03	18.13	18.04	17.65	17.95	17.50	17.79	17.86	17.45

* Marketing loan benefits and insurance net indemnities are averaged across all acres. PLC and ARC payments are per participating acre.
All projections are averages across 500 stochastic outcomes.

Barley supply and use

June-May year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Area					(Million acres)						
Planted area	2.54	2.58	2.61	2.55	2.53	2.51	2.51	2.52	2.51	2.48	2.45
Harvested area	1.98	2.10	2.12	2.08	2.06	2.05	2.05	2.05	2.04	2.02	2.00
					(Bushels per harvested acre)						
Yield	77.4	74.8	75.6	76.5	77.4	78.1	78.8	79.5	80.2	80.9	81.8
Supply and use					(Million bushels)						
Production	153	158	161	159	160	160	161	163	164	164	163
Imports	12	21	20	21	21	19	18	17	17	16	17
Domestic use	163	172	172	172	172	172	172	172	172	171	170
Exports	6	5	5	5	6	6	7	7	7	7	8
Ending stocks	90	92	95	98	100	102	103	104	106	107	110
Prices, returns and payments					(Dollars)						
All barley farm price/bu.	4.64	4.78	4.81	4.77	4.71	4.71	4.72	4.75	4.75	4.74	4.70
Feed barley price/bu.	3.12	3.31	3.32	3.31	3.26	3.26	3.24	3.26	3.26	3.26	3.23
Reference price/bu.	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95
Market net return/a.	184.98	178.64	179.97	177.32	174.86	174.42	175.51	177.35	176.78	175.69	172.20
Marketing loan benefits/a.*	0.00	3.00	3.64	4.95	5.71	5.92	5.83	6.42	6.10	5.88	6.44
Payments to participants											
PLC/base a.*	13.81	20.69	21.85	24.14	25.54	25.38	24.55	24.37	25.68	24.50	25.09
ARC/base a.*	6.24	7.29	7.00	7.29	7.02	7.77	8.64	8.18	8.35	8.70	9.20
Insurance net indemnities/a.*	2.33	8.03	9.12	9.46	9.51	9.57	9.75	9.55	9.79	10.05	9.94

* Marketing loan benefits and insurance net indemnities are averaged across all acres. PLC and ARC payments are per participating acre.
All projections are averages across 500 stochastic outcomes.

Oats supply and use

June-May year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Area					(Million acres)						
Planted area	2.75	2.72	2.81	2.81	2.82	2.84	2.86	2.86	2.87	2.88	2.90
Harvested area	0.87	0.96	0.99	0.99	0.99	0.99	1.00	1.00	1.01	1.01	1.01
					(Bushels per harvested acre)						
Yield	64.9	65.7	66.2	66.6	67.0	67.4	67.7	68.0	68.5	69.0	69.6
Supply and use					(Million bushels)						
Production	56	63	66	66	67	67	68	68	69	70	71
Imports	95	94	94	92	92	91	90	90	89	88	87
Domestic use	153	155	156	156	156	156	156	156	156	156	156
Exports	2	2	2	2	2	2	2	2	2	2	2
Ending stocks	37	36	38	38	38	38	38	38	38	39	39
Prices, returns and payments					(Dollars)						
Farm price/bu.	2.59	2.72	2.75	2.74	2.74	2.76	2.76	2.78	2.79	2.80	2.80
Reference price/bu.	2.40	2.40	2.40	2.40	2.41	2.43	2.45	2.46	2.46	2.47	2.48
Market net return/a.	40.22	49.73	50.11	47.96	46.65	47.28	45.94	45.63	45.49	45.47	43.40
Marketing loan benefits/a.*	0.00	3.18	3.60	4.09	4.75	3.99	3.87	4.48	3.72	5.12	4.29
Payments to participants											
PLC/base a.*	0.01	3.21	3.14	3.79	3.97	3.96	4.39	4.41	4.66	4.80	4.70
ARC/base a.*	3.15	1.56	1.09	1.18	1.35	1.55	1.92	2.00	1.92	2.01	2.07
Insurance net indemnities/a.*	0.59	1.71	2.05	2.10	2.13	2.11	2.05	2.08	2.19	2.12	2.26

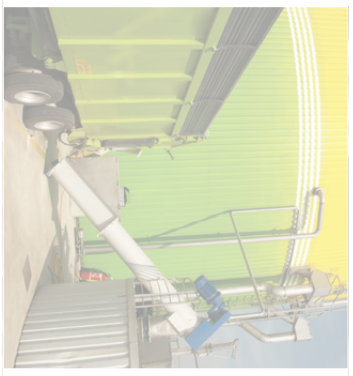
* Marketing loan benefits and insurance net indemnities are averaged across all acres. PLC and ARC payments are per participating acre.
All projections are averages across 500 stochastic outcomes.

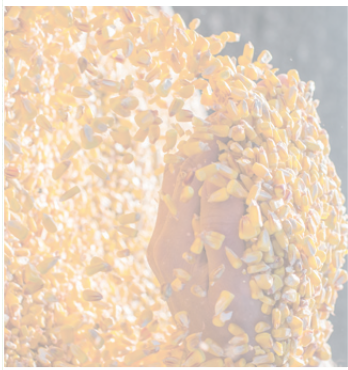
Rice supply and use

August-July year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Area					(Million acres)						
Planted area	2.95	2.83	2.87	2.82	2.81	2.81	2.81	2.82	2.85	2.86	2.87
Harvested area	2.92	2.78	2.81	2.77	2.76	2.75	2.75	2.76	2.79	2.80	2.81
					(Pounds per harvested acre)						
Yield	7,692	7,807	7,878	7,950	8,031	8,102	8,179	8,256	8,339	8,423	8,501
Supply and use					(Million hundredweight)						
Production	224.2	216.6	221.4	219.9	221.3	223.1	225.0	228.1	232.4	236.0	239.2
Imports	28.2	28.6	28.9	29.1	29.5	29.8	30.1	30.4	30.7	31.0	31.3
Domestic use	134.5	135.7	136.9	138.0	139.2	140.3	141.5	142.3	143.1	144.1	144.9
Exports	100.8	111.8	113.0	111.7	111.6	112.4	113.3	115.8	119.2	122.0	124.7
Ending stocks	48.1	45.9	46.3	45.6	45.5	45.6	45.9	46.2	47.1	47.9	48.8
Program provisions					(Dollars per hundredweight)						
Loan rate	6.50	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Reference price											
Long grain	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
Japonica	16.10	17.30	17.30	17.36	17.50	17.67	17.77	17.68	17.64	17.67	17.67
Other medium/short	14.00	14.00	14.00	14.05	14.16	14.30	14.38	14.30	14.27	14.29	14.29
Base area					(Million acres)						
Long grain	3.97	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64
Medium/short	0.75	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Countercyclical/PLC yield					(Pounds per acre)						
Long grain	6,021	5,607	5,607	5,574	5,573	5,571	5,573	5,571	5,571	5,572	5,573
Medium/short	7,122	7,112	7,112	7,115	7,115	7,117	7,115	7,114	7,114	7,114	7,113
PLC participation rate					(Percent of base acres)						
Long grain	99.8	97.8	97.8	93.7	93.9	93.8	94.1	94.0	94.1	94.4	94.5
Medium/short	69.1	68.2	68.2	74.7	75.5	76.5	76.4	73.4	73.2	74.0	72.5
ARC participation rate											
Long grain	0.2	2.2	2.2	6.3	6.1	6.2	5.9	6.0	5.9	5.6	5.5
Medium/short	30.9	31.8	31.8	25.3	24.5	23.5	23.6	26.6	26.8	26.0	27.5
Prices, returns and payments					(Dollars)						
Farm price/cwt	11.94	12.59	12.26	12.21	12.23	12.26	12.26	12.46	12.70	12.76	12.89
Long grain	10.69	11.02	10.95	10.97	11.05	11.11	11.16	11.46	11.79	11.95	12.21
Japonica	18.32	19.53	18.62	18.34	18.28	18.19	18.04	18.00	17.97	17.79	17.50
Other medium/short	11.88	12.57	12.17	12.07	12.09	12.07	12.02	12.15	12.31	12.32	12.30
Gross market revenue/a.	918.07	983.24	965.70	970.41	982.54	993.55	1002.96	1028.89	1058.94	1075.06	1095.88
Variable expenses/a.	556.87	557.95	572.32	585.16	596.73	606.98	618.05	629.50	641.11	653.85	668.15
Market net return/a.	361.19	425.29	393.37	385.24	385.82	386.58	384.91	399.38	417.83	421.21	427.74
Marketing loan benefits/a.*	0.00	4.65	4.65	4.15	4.41	4.46	4.26	3.07	2.65	2.02	1.79
Payments to participants											
PLC/base a.*	156.62	123.00	128.54	125.94	124.48	121.73	121.99	110.96	100.71	95.38	88.26
ARC/base a.*	1.98	25.68	32.93	36.08	41.18	45.55	44.90	43.54	39.27	42.86	46.06
Insurance net indemnities/a.*	14.34	16.32	16.74	16.74	16.91	17.06	17.17	17.21	17.39	17.60	17.71

* Marketing loan benefits and insurance net indemnities are averaged across all acres. PLC and ARC payments are per participating acre.
All projections are averages across 500 stochastic outcomes.



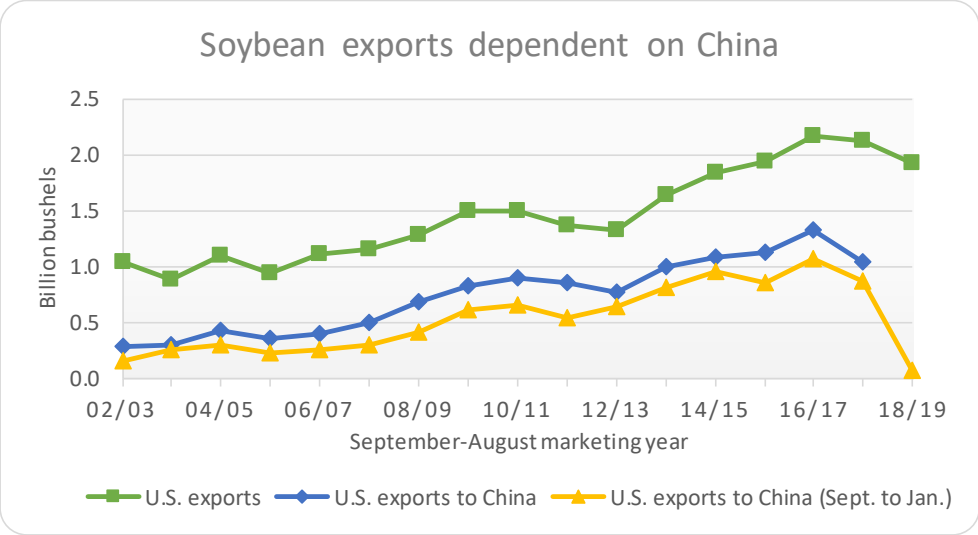


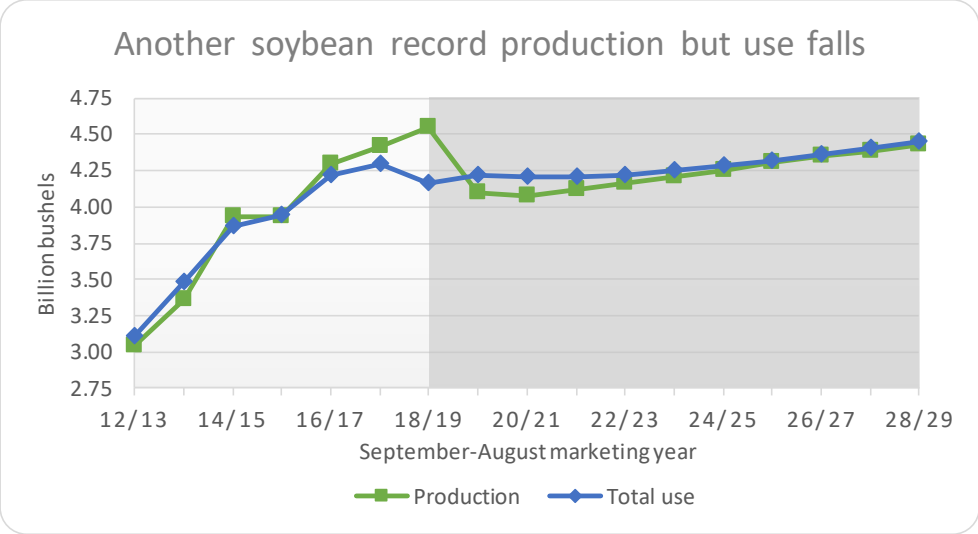
Oilseeds

Soybeans and products

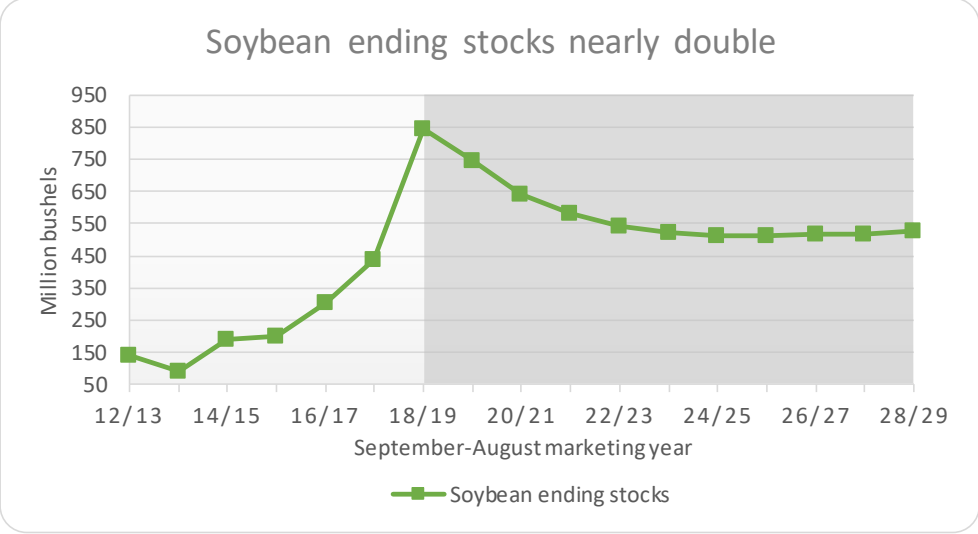
In the 2016/17 marketing year, 61 percent of U.S. exports went to China. Almost no U.S. soybeans were shipped to China in the first four months of the 2018/19 marketing year, although some sales have occurred more recently. U.S. exports to other destinations increase in 2018/19, but not enough to fully offset reduced sales to China.

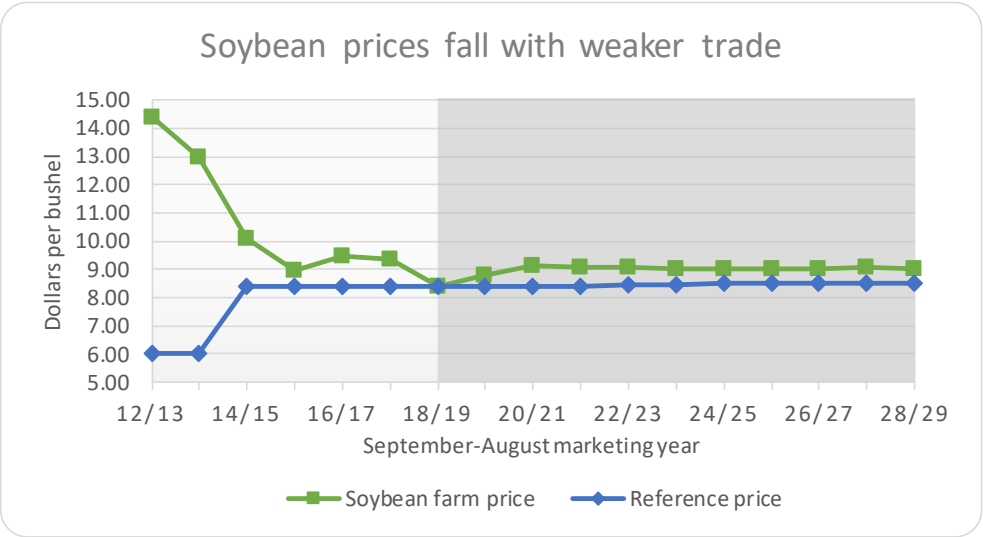


U.S. soybean production set yet another record in 2018. Corresponding growth in exports consumed the increase. Chinese tariffs on U.S. soybeans imposed as part of the trade dispute have caused total use to drop in 2018/19 despite having a new record production. The result is an increase in ending stocks.

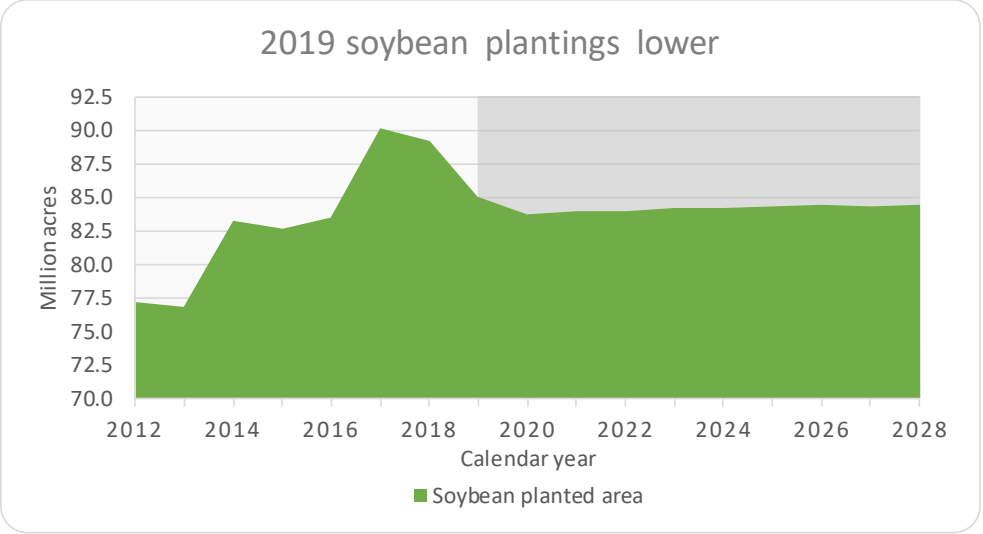


Soybean stock levels have been growing for the past several years. However, with record production and trade issues the amount nearly doubles in the 2018/19 crop year. Normally such a large increase in stocks would result in much lower prices; however, market participants appear to be anticipating an agreement that would allow export sales to rebound. The baseline does not incorporate such an agreement.

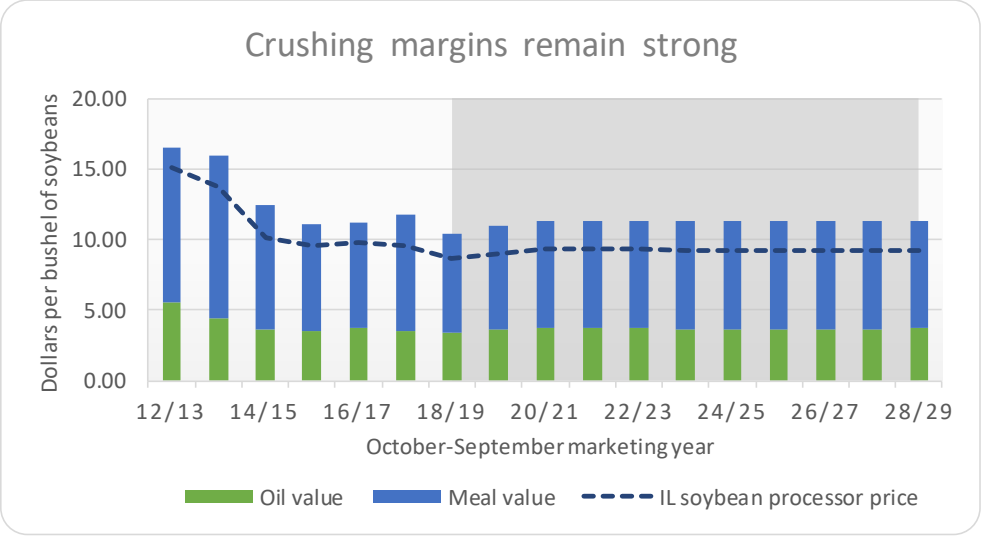




Record production, reduced exports and higher stocks contribute to lower U.S. soybean prices in 2018/19. Reduced production and stocks allow a modest price recovery in 2019/20 and 2020/21, but average prices never get much above $9.00 per bushel. The ratio of soybean to corn prices remains well below the average of recent years.



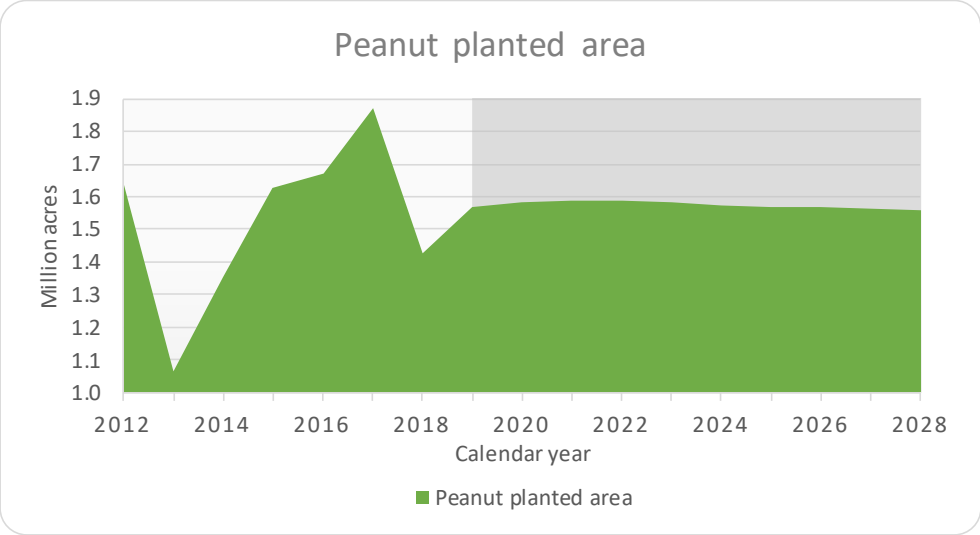
The drop in soybean prices causes producers to shift acreage back to corn in 2019. The baseline has soybean plantings falling to 85.0 million acres. The USDA plantings intention reports that producers plan to plant 84.6 million acres. Iowa, North Dakota and South Dakota reported the largest absolute drops in soybean acreage.



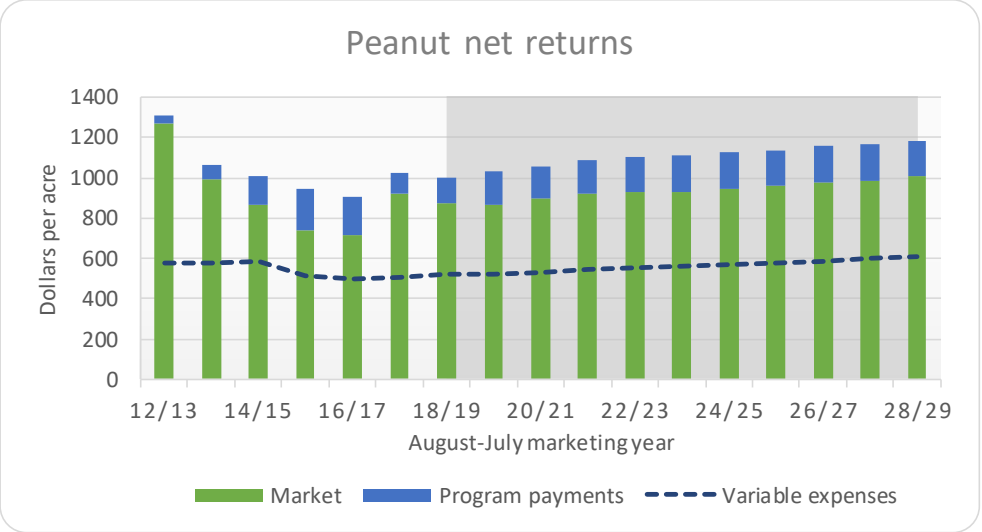
In 2017/18, a sharp increase in domestic biodiesel demand was met primarily with soybean oil. Use of other fats and oils for biodiesel is expected to put pressure on soybean oil use for biodiesel. A large Argentinian soybean crop has lowered meal prices in 2018/19. With lower demand abroad for U.S. soybeans, crushing margins are expected to remain strong as the price of soybeans has fallen faster than of oil and meal.

Peanuts

Before the Bipartisan Budget Act (BBA) of 2018, producers could receive peanut PLC payments on generic base acres if they planted peanuts. The BBA eliminated generic base acres and peanut acreage fell. The baseline has the 2019 plantings at 1.57 million acres. The USDA prospective plantings report shows that farmers intend to plant 1.45 million acres.

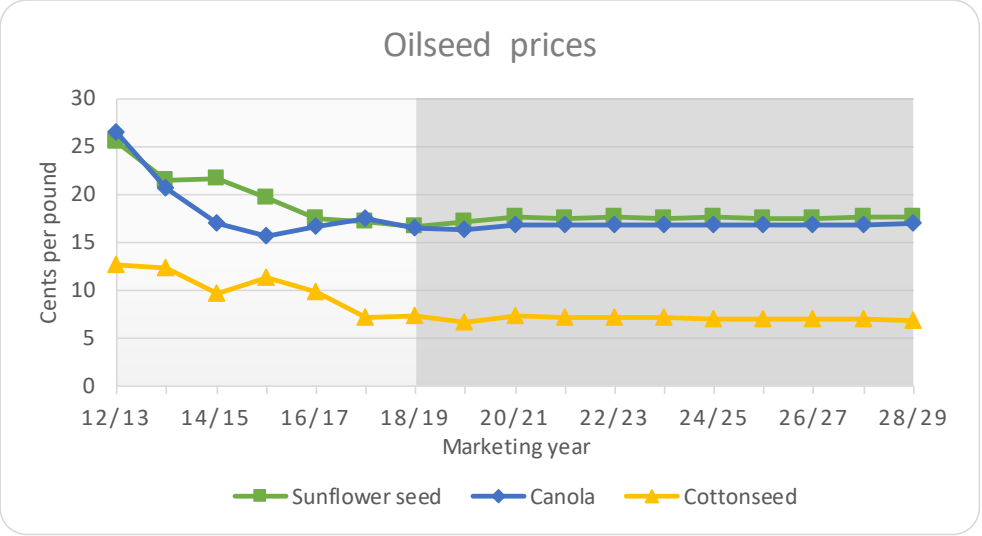


The average peanut farm price remains well below the base reference price of $535 per ton. This results in large payments per base acre, particularly for PLC. As a result, most peanut base acres were in PLC. This is expected to continue. In the baseline, the average participation rate falls slightly as in some of the outcomes ARC may fare better relative to PLC than in the past.



Other oilseeds

Average sunflower seed and canola prices remain below the reference price of 20.2 cents per pound. Canola area in the U.S. has been increasing sharply in the past several years with a record high in 2017. Cottonseed prices average less than 8.0 cents per pound through the projection period. This commodity is not a program commodity eligible for PLC or ARC payments, but does figure into seed cotton prices used to calculate the corresponding ARC and PLC payments.



Soybean supply and use

September-August year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Area					(Million acres)						
Planted area	89.2	85.0	83.8	84.0	84.0	84.2	84.2	84.4	84.4	84.4	84.4
Harvested area	88.1	84.2	83.0	83.2	83.2	83.5	83.5	83.6	83.6	83.6	83.6
					(Bushels per harvested acre)						
Yield	51.6	48.7	49.1	49.6	50.0	50.5	51.0	51.5	52.0	52.5	53.0
					(Million bushels)						
Supply	5,002	4,964	4,842	4,783	4,764	4,775	4,797	4,835	4,883	4,924	4,970
Beginning stocks	438	844	746	639	582	544	524	512	514	518	519
Production	4,544	4,100	4,076	4,124	4,162	4,211	4,253	4,302	4,349	4,386	4,431
Imports	20	20	20	20	20	20	20	20	20	20	20
Domestic use	2,234	2,253	2,251	2,252	2,257	2,270	2,287	2,306	2,326	2,347	2,370
Crush	2,105	2,133	2,133	2,132	2,135	2,146	2,161	2,179	2,197	2,216	2,238
Seed and residual	129	119	119	121	122	124	126	127	129	130	132
Exports	1,923	1,966	1,952	1,949	1,963	1,981	1,998	2,015	2,039	2,058	2,075
Total use	4,158	4,219	4,203	4,202	4,220	4,251	4,285	4,321	4,365	4,405	4,444
Ending stocks	844	746	639	582	544	524	512	514	518	519	526
CCC inventory	0	0	0	0	0	0	0	0	0	0	0
Under loan	22	32	29	31	32	32	33	34	35	36	37
Other stocks	822	714	610	551	512	491	479	479	483	483	489
Prices, program provisions					(Dollars per bushel)						
Farm price	8.42	8.78	9.11	9.09	9.09	9.03	9.04	9.03	9.03	9.07	9.03
Illinois processor price	8.67	9.02	9.34	9.32	9.32	9.26	9.27	9.27	9.26	9.30	9.26
Loan rate	5.00	6.20	6.20	6.20	6.20	6.20	6.20	6.20	6.20	6.20	6.20
Reference price	8.40	8.40	8.40	8.41	8.43	8.45	8.49	8.50	8.50	8.50	8.51
					(Million acres)						
Base area	54.6	53.9	53.9	53.9	53.9	53.9	53.9	53.9	53.9	53.9	53.9
					(Bushels per acre)						
PLC program yield	35.7	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2
					(Percent of base acres)						
PLC participation rate	3.3	65.2	65.2	69.6	70.5	70.7	70.5	70.7	70.9	71.3	71.1
ARC participation rate	96.7	34.8	34.8	30.4	29.5	29.3	29.5	29.3	29.1	28.7	28.9
Returns and payments					(Dollars)						
Gross market revenue/a.	434.12	424.84	444.68	448.15	451.75	452.90	458.45	462.29	466.92	473.18	475.61
Variable expenses/a.	162.89	162.26	166.36	170.69	174.05	176.96	179.88	182.75	185.65	189.06	192.99
Market net return/a.	271.23	262.58	278.32	277.46	277.70	275.94	278.57	279.54	281.27	284.12	282.63
Marketing loan benefits/a.*	0.00	1.34	1.84	2.30	2.03	2.12	2.45	3.69	3.62	2.59	2.48
Payments to participants											
PLC/base a.*	2.96	14.07	11.72	13.14	13.52	13.83	14.61	15.43	16.36	15.31	15.12
ARC/base a.*	6.39	13.33	9.74	9.68	8.56	8.47	9.13	9.61	9.79	9.81	9.85
Insurance net indemnities/a.*	4.36	13.29	13.70	14.26	14.75	15.22	15.81	16.11	16.61	16.67	16.81
					(Dollars per bushel)						
Crush margin	1.82	1.96	1.99	2.00	2.01	2.03	2.05	2.06	2.07	2.09	2.12

* Marketing loan benefits and insurance net indemnities are averaged across all acres. PLC and ARC payments are per participating acre.
All projections are averages across 500 stochastic outcomes.

Soybean oil supply and use

October-September year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
					(Million pounds)						
Supply	26,949	27,115	26,917	26,943	27,058	27,275	27,508	27,764	28,005	28,257	28,515
Beginning stocks	1,990	2,055	1,866	1,905	1,978	2,067	2,128	2,176	2,206	2,234	2,248
Production	24,631	24,733	24,724	24,711	24,753	24,881	25,052	25,261	25,472	25,696	25,940
Imports	327	327	327	327	327	327	327	327	327	327	327
Domestic use	22,648	23,000	22,893	22,617	22,484	22,484	22,624	22,867	23,177	23,497	23,811
Biodiesel	8,156	8,424	8,319	8,018	7,795	7,720	7,791	7,972	8,232	8,497	8,752
Food and other	14,491	14,576	14,574	14,599	14,689	14,764	14,834	14,895	14,945	15,000	15,058
Exports	2,246	2,250	2,119	2,348	2,507	2,663	2,707	2,691	2,594	2,512	2,440
Total use	24,894	25,250	25,012	24,965	24,991	25,147	25,332	25,558	25,771	26,009	26,251
Ending stocks	2,055	1,866	1,905	1,978	2,067	2,128	2,176	2,206	2,234	2,248	2,265
Price					(Cents per pound)						
Decatur	29.08	31.02	32.47	32.61	31.88	31.47	31.38	31.39	31.36	31.61	31.94

All projections are averages across 500 stochastic outcomes.

Soybean meal supply and use

October-September year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
					(Thousand tons)						
Supply	50,550	51,652	51,629	51,603	51,691	51,955	52,308	52,738	53,173	53,634	54,137
Beginning stocks	553	481	477	477	480	481	484	486	489	491	493
Production	49,502	50,675	50,656	50,631	50,715	50,979	51,330	51,756	52,189	52,648	53,148
Imports	495	495	495	495	495	495	495	495	495	495	495
Domestic use	36,151	36,284	36,103	36,146	36,071	36,276	36,390	36,719	37,091	37,403	37,678
Exports	13,917	14,890	15,049	14,976	15,139	15,195	15,432	15,530	15,591	15,737	15,962
Total use	50,068	51,174	51,153	51,122	51,210	51,471	51,822	52,249	52,682	53,141	53,640
Ending stocks	481	477	477	480	481	484	486	489	491	493	497
Price					(Dollars per ton)						
Decatur, 48% protein	301.12	310.68	318.27	317.61	321.39	321.70	323.32	323.77	323.99	325.00	323.17

All projections are averages across 500 stochastic outcomes.

Peanut supply and use

August-July year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Area					(Million acres)						
Planted area	1.43	1.57	1.58	1.59	1.59	1.58	1.57	1.57	1.57	1.56	1.56
Harvested area	1.37	1.48	1.50	1.50	1.51	1.50	1.49	1.49	1.49	1.49	1.48
					(Pounds per harvested acre)						
Yield	3,991	4,071	4,131	4,194	4,249	4,303	4,359	4,419	4,480	4,536	4,593
Supply and use					(Million pounds)						
Production	5,462	6,041	6,202	6,308	6,401	6,467	6,505	6,572	6,679	6,740	6,797
Imports	100	100	100	100	100	100	100	100	100	100	100
Domestic use	4,697	4,872	4,954	5,023	5,082	5,140	5,186	5,235	5,290	5,342	5,388
Exports	1,226	1,262	1,286	1,308	1,328	1,346	1,364	1,384	1,407	1,431	1,448
Ending stocks	2,357	2,364	2,425	2,502	2,593	2,674	2,729	2,782	2,864	2,931	2,992
Prices, returns and payments					(Dollars)						
Farm price/ton	436.21	428.40	436.24	440.14	437.78	434.31	435.05	437.39	435.93	435.84	440.23
Reference price/ton	535.00	535.00	535.00	535.00	535.00	535.00	535.00	535.00	535.00	535.00	535.00
Market net return/a.	351.81	349.34	366.27	377.61	374.99	371.56	376.06	385.44	386.90	389.09	399.73
Marketing loan benefits/a.*	0.00	11.90	12.32	13.47	14.52	14.81	15.05	16.27	16.94	17.28	18.97
Payments to participants											
PLC/base a.*	133.29	151.66	146.80	161.31	165.55	169.36	167.74	162.36	169.55	168.41	160.74
ARC/base a.*	41.94	46.50	34.21	49.62	52.61	63.37	60.12	52.93	57.78	59.00	56.24

* Marketing loan benefits and insurance net indemnities are averaged across all acres. PLC and ARC payments are per participating acre.
All projections are averages across 500 stochastic outcomes.

Sunflower seed supply and use

September-August year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Area					(Million acres)						
Planted area	1.30	1.42	1.43	1.42	1.41	1.41	1.42	1.41	1.41	1.40	1.41
Harvested area	1.22	1.29	1.30	1.29	1.28	1.28	1.29	1.29	1.28	1.27	1.28
					(Pounds per harvested acre)						
Yield	1,731	1,654	1,665	1,673	1,680	1,691	1,703	1,715	1,724	1,737	1,747
Supply and use					(Million pounds)						
Production	2,116	2,132	2,166	2,163	2,152	2,171	2,196	2,209	2,208	2,218	2,242
Imports	214	214	214	214	214	214	214	214	214	214	214
Domestic use	2,095	2,173	2,187	2,193	2,187	2,195	2,212	2,232	2,240	2,257	2,284
Exports	231	172	190	181	179	187	195	188	180	173	169
Ending stocks	389	389	391	394	394	397	400	403	404	406	409
Prices, returns and payments					(Dollars)						
Farm price/lb	0.167	0.171	0.177	0.175	0.175	0.175	0.176	0.175	0.175	0.176	0.177
Market net return/a.	153.00	145.55	153.80	149.10	148.14	146.94	148.46	146.05	145.92	146.91	146.66
Marketing loan benefits/a.*	0.00	0.16	0.04	0.07	0.04	0.17	0.25	0.10	0.39	0.09	0.16
Payments to participants											
PLC/base a.*	37.99	35.42	29.67	31.39	31.46	31.28	29.86	31.10	30.96	30.31	29.81
ARC/base a.*	7.29	12.94	11.55	12.19	11.73	11.78	10.63	10.65	10.70	10.89	10.30

* Marketing loan benefits and insurance net indemnities are averaged across all acres. PLC and ARC payments are per participating acre.
All projections are averages across 500 stochastic outcomes.

Cottonseed and canola production and prices

Marketing year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Production					(Thousand tons, Aug.-Jul. year)						
Cottonseed	5,794	7,062	6,521	6,620	6,616	6,663	6,710	6,765	6,781	6,814	6,830
					(Million pounds, Jul.-Jun. year)						
Canola	3,617	3,464	3,482	3,515	3,541	3,569	3,594	3,628	3,657	3,682	3,713
Prices					(Dollars per ton, Aug.-Jul. year)						
Cottonseed	147	134	146	144	143	141	140	139	139	138	137
Canola					(Cents per pound, Jul.-Jun. year)						
Farm price	16.4	16.2	16.7	16.8	16.9	16.7	16.8	16.8	16.8	16.8	16.9
Reference price	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2

Cottonseed production, cottonseed prices and canola farm prices are averages across 500 stochastic outcomes.

Seed cotton indicators

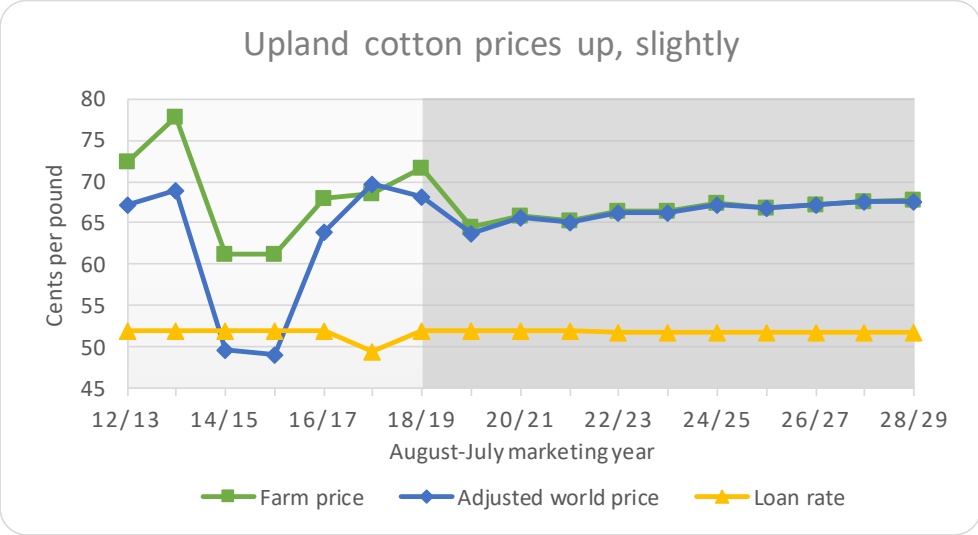
August-July year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
					(Cents per pound)						
Marketing year average price	34.45	31.14	32.61	32.56	32.93	32.83	33.29	33.18	33.34	33.56	33.65
Reference price	36.70	36.70	36.70	36.70	36.70	36.70	36.70	36.70	36.70	36.70	36.70
					(Million acres)						
Base area	13.00	12.34	12.34	12.34	12.34	12.33	12.33	12.33	12.33	12.33	12.33
					(Pounds per acre)						
PLC program yield	1,475	1,465	1,465	1,465	1,465	1,465	1,465	1,465	1,465	1,465	1,465
					(Percent of base acres)						
PLC participation rate	99.0	99.2	99.2	98.8	98.8	98.8	98.7	98.8	98.8	98.8	98.8
ARC participation rate	1.0	0.8	0.8	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2
Payments to participants						(Dollars)					
PLC/base a.*	26.23	63.84	58.61	59.98	56.85	56.25	51.61	55.16	54.73	53.40	52.89
ARC/base a.*	32.88	31.47	30.05	25.51	19.06	17.88	17.81	19.82	18.89	20.01	18.71

All projections are averages across 500 stochastic outcomes.

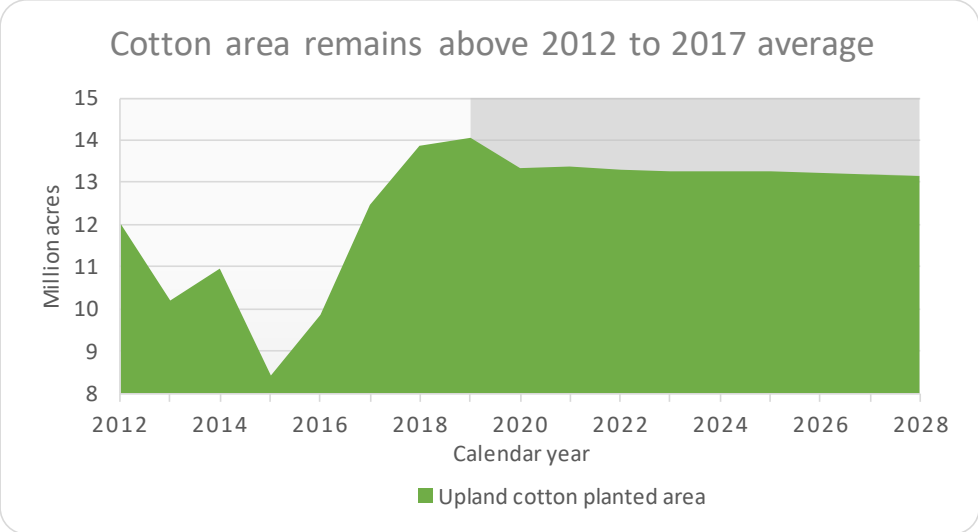
Other crops

Upland cotton

Decreased world cotton production in 2018/19 increased the farm price. Much of the change occurred in the U.S. due to high abandonment and lower yields. An increase in area with lower abandonment and trend yields would lower prices in 2019/20, all else equal.

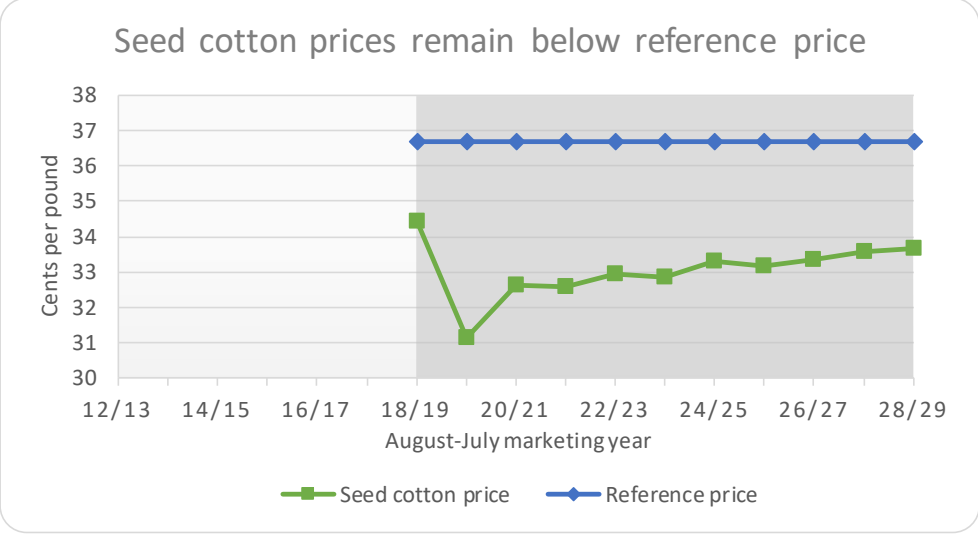


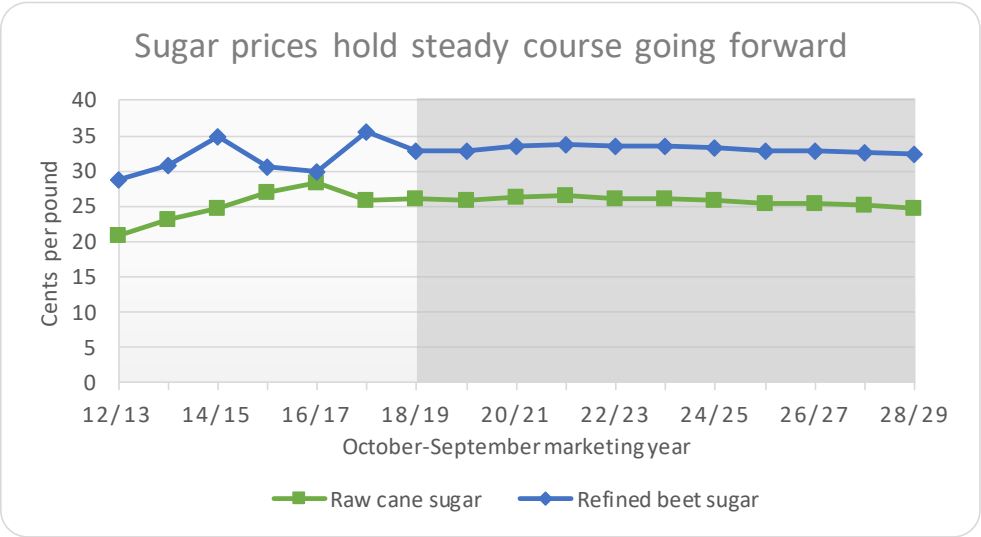
Higher upland cotton prices in 2017/18 and 2018/19 helped return acres to the crop. The baseline has 2019 acreage increasing to 14.1 million acres, whereas the prospective plantings report has it at 13.5 million acres. Acreage remains below recent peaks in the baseline due to prices remaining below 2016/17 to 2018/19 levels.



Seed cotton

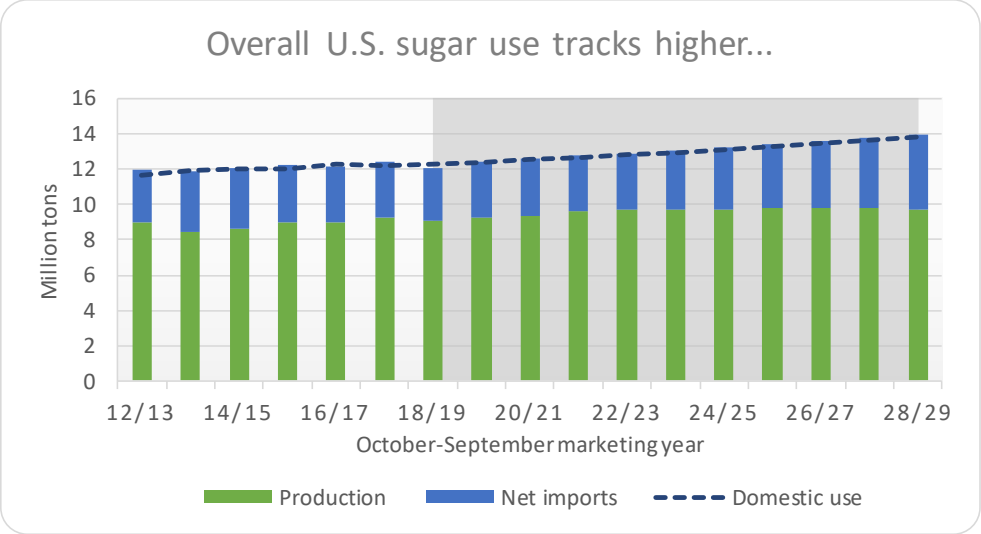
Seed cotton is a crop created by the Bipartisan Budget Act (BBA) of 2018. It is the pre-ginned upland cotton crop that includes both seed and lint. Seed cotton is eligible for ARC and PLC payments, whereas the seed and lint are not. The base reference price for seed cotton is 36.7 cents per pound. The average stochastic prices for the crop stay well below that level.



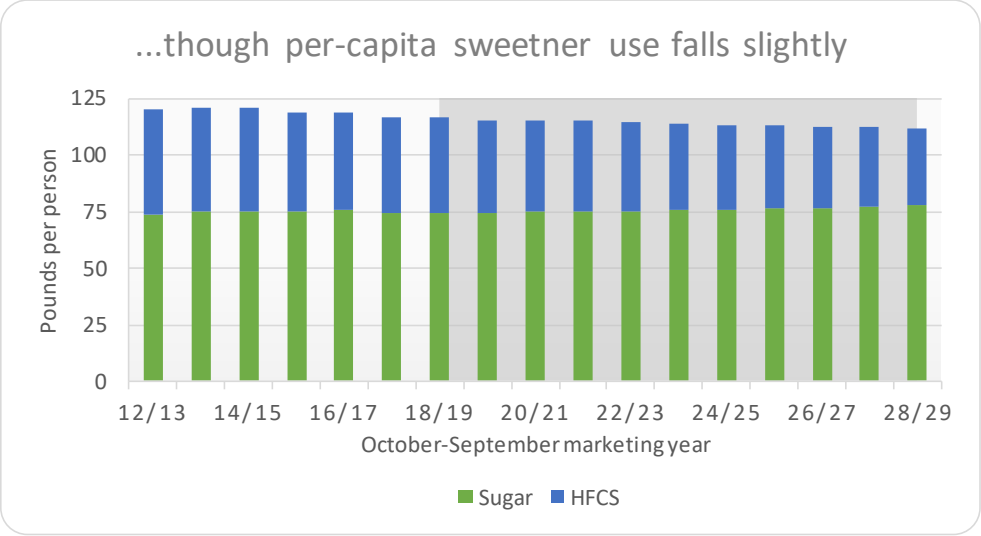


Sugar

Raw and refined sugar prices remain fairly level over most of the projection period but decline slightly toward the end. The average prices shown here are close to the new loan rates for sugar beets and sugarcane, which were increased in the 2018 farm bill.



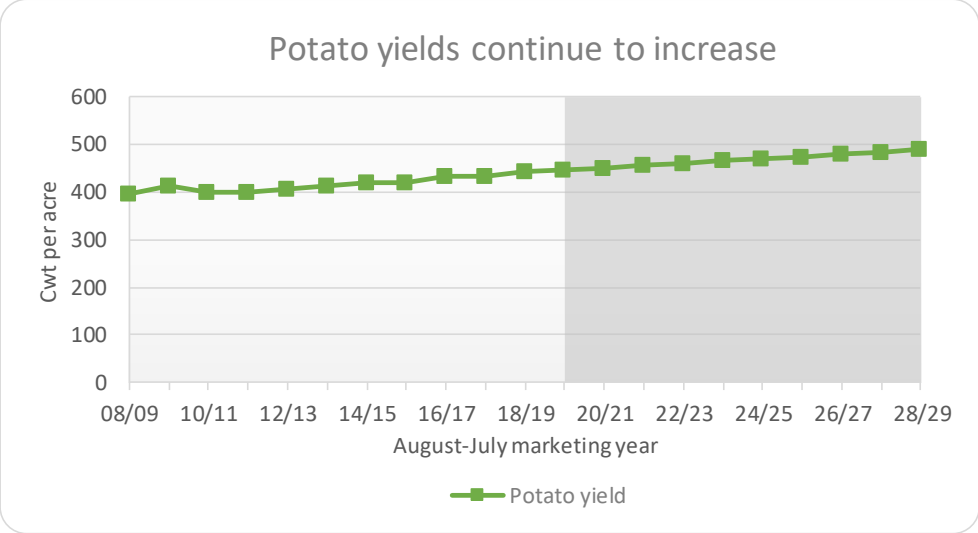
Domestic sugar use in total is projected to reach 13.8 million tons by 2028/29. While there is some growth in domestic production to help meet that demand, sugar imports also are projected to rise. This occurs because the baseline assumes a continuation of the U.S.-Mexico suspension agreement.



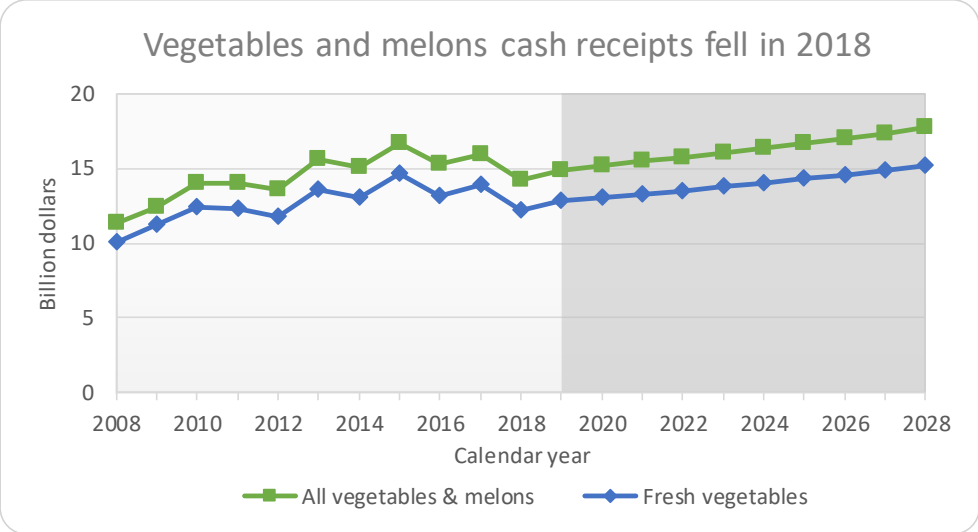
Per-capita sweetener use is projected to decline as consumer demand for high-fructose corn syrup (HFCS) continues its recent downward trend. In contrast, per-capita demand for sugar increases slightly.

Potatoes, fresh vegetables, fruits and nuts

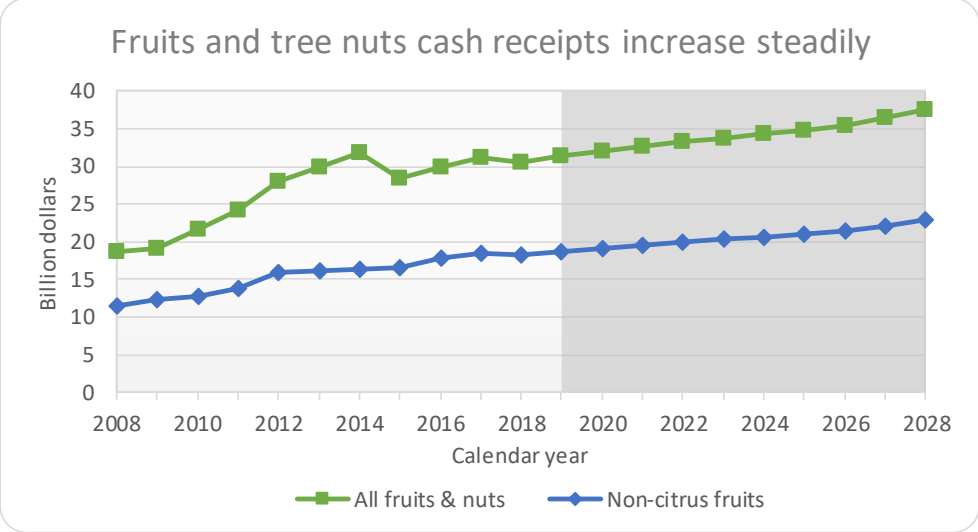
The potato yield increased slightly in 2018/19 to 444 cwt per acre. Overall, the yield has been increasing steadily at an average growth rate of 1.5 percent annually over the past five years and is expected to continue to rise over the projection period. Area planted in 2018/19 declined but was not enough to offset the increase in yield, putting some downward pressure on prices. Growth in both imports and exports is projected to remain steady.

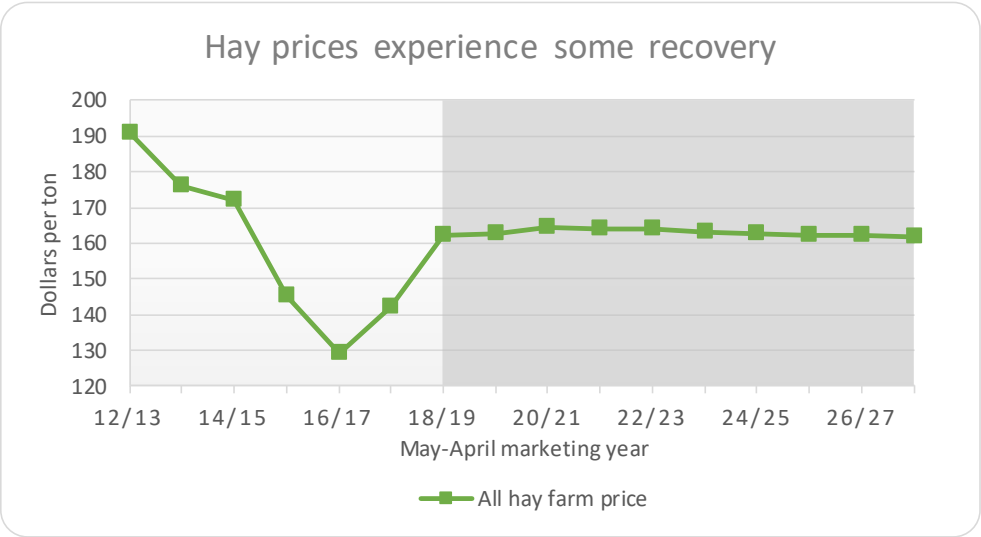


Fresh vegetables account for 87 percent of the total cash receipts for all vegetables and melons. In 2018, total cash receipts were $14 billion, down by 11 percent from the previous year. Over the projection period, total cash receipts for all vegetables and melons are expected to increase, though slightly.



Non-citrus fruits account for about 60 percent of the total cash receipts for all fruits and tree nuts. In 2018, total cash receipts were $31 billion, down by 2 percent compared to the previous year. Orange crops rebound from hurricane losses in 2017, but are not expected to return to their peak due to a declining trend in orange juice consumption. Over the projection period, total cash receipts for all fruits and tree nuts are expected to show a modest increase.





Hay

Hay harvested area and yields have been down the past several years. The decrease in production has allowed hay prices to climb in 2017/18 and 2018/19. The baseline has a slight increase in area and a return to trend yield which allows the average price path to remain flat.

Upland cotton supply and use

August-July year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Area					(Million acres)						
Planted area	13.85	14.07	13.33	13.38	13.29	13.28	13.27	13.28	13.23	13.19	13.16
Harvested area	10.28	12.14	11.16	11.20	11.13	11.12	11.12	11.13	11.09	11.07	11.03
					(Pounds per harvested acre)						
Yield	821	853	861	870	878	888	896	906	915	924	931
					(Million bales)						
Supply	21.79	25.62	26.26	26.52	26.63	26.77	26.95	27.15	27.30	27.44	27.52
Beginning stocks	4.20	4.03	6.19	6.14	6.22	6.15	6.12	6.08	6.12	6.09	6.08
Production	17.60	21.59	20.07	20.37	20.41	20.62	20.82	21.07	21.18	21.35	21.44
Imports	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Use	17.77	19.43	20.12	20.29	20.48	20.65	20.87	21.03	21.21	21.36	21.48
Domestic mill use	3.19	3.26	3.30	3.33	3.34	3.34	3.33	3.32	3.31	3.30	3.29
Exports	14.58	16.16	16.82	16.96	17.14	17.31	17.54	17.71	17.90	18.06	18.18
Ending stocks	4.03	6.19	6.14	6.22	6.15	6.12	6.08	6.12	6.09	6.08	6.04
Prices, program provisions					(Cents per pound)						
Farm price	71.7	64.5	65.9	65.4	66.4	66.4	67.3	66.9	67.2	67.6	67.8
Adjusted world price	68.2	63.6	65.6	65.1	66.3	66.2	67.3	66.8	67.1	67.5	67.6
Loan rate	52.0	52.0	52.0	52.0	51.8	51.8	51.8	51.8	51.8	51.8	51.8
Returns and payments					(Dollars)						
Gross market revenue/a.	671.23	625.01	650.01	651.21	666.47	671.06	685.69	686.69	696.96	706.27	713.20
Variable expenses/a.	444.73	447.43	452.07	464.94	474.62	484.83	495.71	505.46	513.65	523.38	535.06
Market net return/a.	226.51	177.57	197.94	186.26	191.85	186.23	189.98	181.22	183.31	182.90	178.15
Marketing loan benefits/a.*	0.00	23.68	21.41	23.21	21.31	19.74	21.04	22.47	19.12	18.35	18.87
Insurance net indemnities/a.	93.04	48.54	53.60	49.54	50.60	50.91	51.15	52.17	53.48	53.28	53.24

* Marketing loan benefits and insurance net indemnities are averaged across all acres.
All projections are averages across 500 stochastic outcomes.

Sugar supply and use

October-September year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Area					(Million acres)						
Sugar cane harvested	0.861	0.858	0.857	0.860	0.855	0.844	0.833	0.820	0.808	0.795	0.780
Sugar beet planted	1.113	1.161	1.172	1.192	1.186	1.173	1.169	1.158	1.147	1.137	1.119
Sugar beet harvested	1.095	1.136	1.148	1.167	1.161	1.149	1.144	1.134	1.123	1.113	1.096
Yield					(Tons per harvested acre)						
Cane sugar	4.86	4.64	4.67	4.73	4.75	4.77	4.80	4.83	4.85	4.88	4.91
Beet sugar	4.47	4.60	4.69	4.77	4.86	4.94	5.03	5.12	5.22	5.31	5.41
Supply and use					(Thousand tons)						
Production	9,076	9,217	9,378	9,637	9,699	9,695	9,753	9,769	9,781	9,794	9,753
Cane sugar	4,184	3,985	3,998	4,068	4,059	4,024	3,998	3,959	3,921	3,880	3,827
Beet sugar	4,893	5,232	5,380	5,569	5,639	5,671	5,755	5,809	5,861	5,914	5,926
Imports	3,045	3,278	3,279	3,180	3,249	3,392	3,496	3,667	3,846	4,044	4,306
Domestic use	12,280	12,454	12,584	12,733	12,888	13,031	13,185	13,368	13,562	13,766	13,991
Exports	42	51	50	50	52	55	58	61	64	67	71
Ending stocks	1,808	1,799	1,821	1,855	1,862	1,863	1,870	1,876	1,877	1,881	1,878
Prices					(Cents per pound)						
N.Y. spot raw sugar	26.02	25.76	26.35	26.52	26.12	26.07	25.76	25.46	25.36	25.07	24.65
Refined beet sugar	32.89	32.77	33.56	33.83	33.44	33.49	33.22	32.95	32.94	32.69	32.30

All projections are averages across 500 stochastic outcomes.

Hay supply and use

May-April year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
					(Million acres)						
Harvested area	52.8	53.1	53.2	53.2	53.1	53.0	53.0	52.9	52.8	52.8	52.8
					(Tons per acre)						
Yield	2.34	2.43	2.44	2.45	2.46	2.47	2.48	2.49	2.50	2.50	2.51
Supply and use					(Million tons)						
Production	123.6	128.9	130.0	130.6	130.8	131.1	131.3	131.6	131.9	132.1	132.4
Disappearance	122.7	123.8	125.0	125.5	125.5	125.8	126.0	126.2	126.4	126.6	126.8
Net exports	4.6	4.7	4.7	4.8	4.9	5.0	5.0	5.1	5.2	5.2	5.3
Ending stocks	11.6	12.0	12.4	12.7	13.1	13.4	13.7	14.0	14.3	14.6	14.9
					(Dollars per ton)						
All hay farm price	162.17	162.74	164.34	163.83	163.92	162.94	162.49	162.13	162.08	161.93	161.68

All projections are averages across 500 stochastic outcomes.

Potato supply and use

August-July year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Area					(Thousand acres)						
Planted area	1,033	1,025	1,016	1,008	1,001	993	986	980	973	967	961
Harvested area	1,023	1,015	1,007	1,000	992	985	979	972	966	960	954
					(Hundredweight per harvested acre)						
Yield	444	446	451	456	460	465	470	475	479	484	489
Supply and use					(Million hundredweight)						
Production	454	453	454	455	457	458	460	461	463	465	466
Imports	63	65	66	66	67	68	69	70	71	72	73
Domestic disappearance	440	438	439	440	441	442	442	442	443	443	443
Exports	77	79	80	82	84	86	88	90	92	94	96
Prices					(Dollars per hundredweight)						
Farm price	9.04	9.13	9.15	9.19	9.22	9.26	9.31	9.36	9.38	9.39	9.40
					(Percent of acres)						
Crop insurance participation	72	72	72	72	72	72	72	72	72	72	72
Returns and payments					(Dollars)						
Gross market revenue/a.	4,012	4,073	4,124	4,186	4,245	4,306	4,376	4,440	4,494	4,545	4,593
Variable expenses/a.	2,101	2,127	2,153	2,197	2,242	2,280	2,334	2,386	2,429	2,476	2,533
Market net return/a.	1,910	1,946	1,971	1,989	2,003	2,025	2,042	2,054	2,065	2,069	2,061
Premium subsidy/a.	53	54	55	56	57	58	59	60	61	62	63

All projections are averages across 500 stochastic outcomes.

Fresh vegetable and melon supply and use

Calendar year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Area					(Million acres)						
Planted area	2.50	2.49	2.47	2.45	2.44	2.42	2.41	2.40	2.39	2.38	2.38
Harvested area	2.39	2.38	2.36	2.34	2.33	2.31	2.30	2.29	2.29	2.28	2.28
					(Quantity index per acre)						
Yield	21.8	22.9	23.1	23.2	23.4	23.5	23.7	23.8	24.0	24.1	24.3
Supply and use					(Quantity index)						
Production	52	54	54	54	54	54	54	55	55	55	55
Imports	34	35	36	37	38	39	39	40	41	41	42
Domestic use	78	81	82	82	83	84	84	85	85	86	87
Exports	9	9	9	9	9	9	10	10	10	10	10
Prices					(Price index, 1984=100)						
Producer price	233	236	241	245	249	253	258	262	266	271	276
Cash receipts					(Million dollars)						
Fresh vegetables and melons	12,189	12,837	13,071	13,295	13,523	13,766	14,030	14,295	14,581	14,892	15,217
Other vegetables	1,996	2,061	2,121	2,173	2,220	2,266	2,315	2,361	2,410	2,467	2,532
Total receipts	14,185	14,898	15,191	15,467	15,743	16,033	16,345	16,656	16,991	17,359	17,749

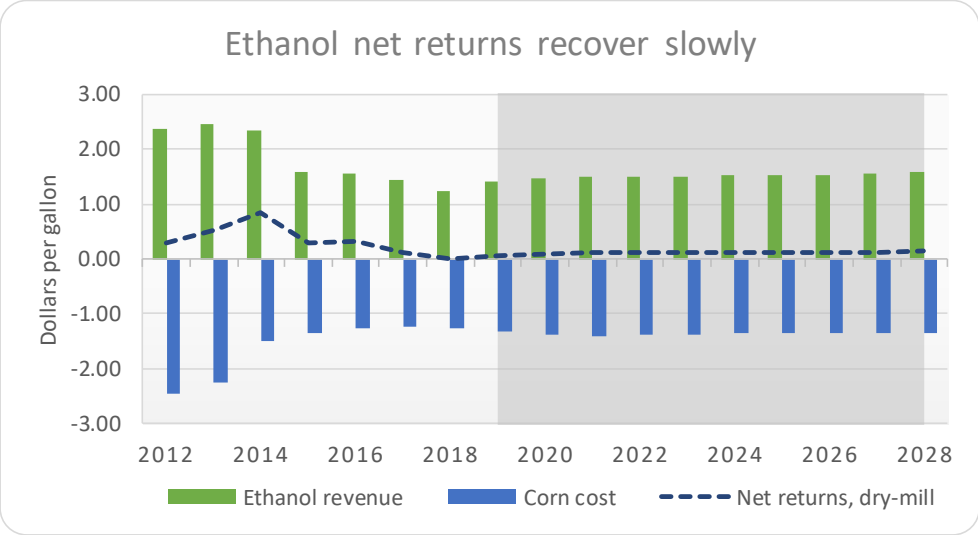
Non-citrus fruit supply and use

Calendar year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Area					(Million acres)						
Bearing acre	2.01	2.00	1.99	1.98	1.98	1.97	1.97	1.97	1.96	1.96	1.96
					(Quantity index per acre)						
Yield	72	74	75	76	78	79	80	81	83	84	85
Supply and use					(Quantity index)						
Production	146	147	149	151	154	156	158	160	162	165	167
Imports	83	85	88	90	93	95	97	99	101	103	105
Domestic use	200	205	209	213	217	221	224	228	232	236	239
Exports	28	28	29	29	29	30	31	31	32	32	33
Prices					(Price index, 1982=100)						
Producer price	125	127	128	129	130	131	131	131	132	134	137
Cash receipts					(Million dollars)						
Non-citrus fruits	18,205	18,670	19,152	19,578	19,988	20,353	20,646	20,965	21,438	22,082	22,899
Other fruits	12,400	12,632	12,873	13,086	13,291	13,473	13,620	13,780	14,016	14,338	14,746
Total receipts	30,605	31,302	32,026	32,664	33,279	33,826	34,266	34,745	35,454	36,420	37,645

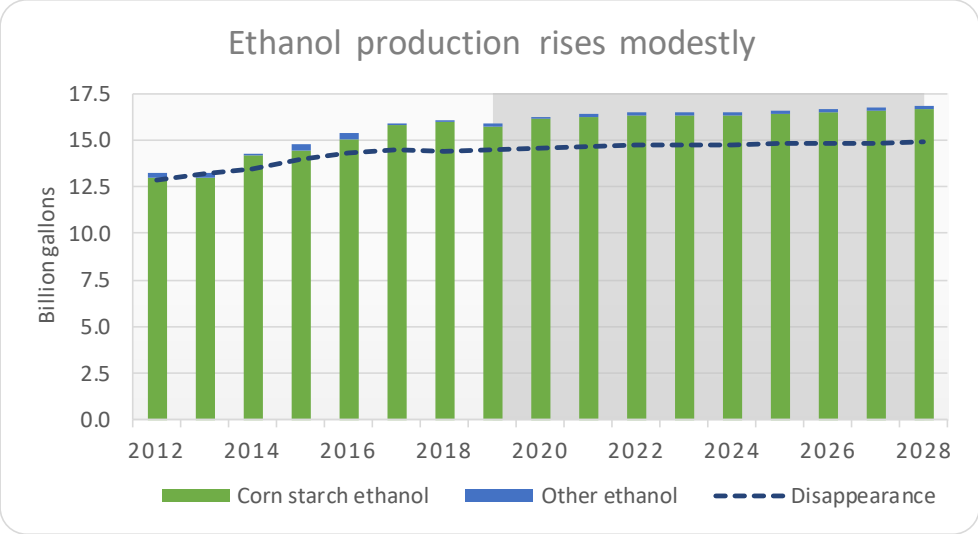
Biofuels

Ethanol

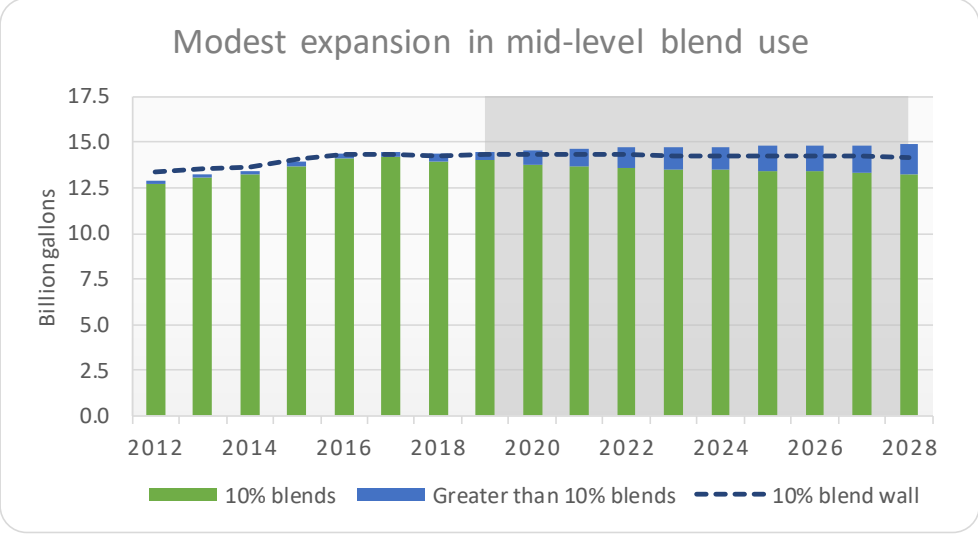
The outlook for ethanol rack prices is one of slow recovery, averaging just $1.51 over the projection period. Combined with slowly falling corn prices, dry-mill net returns rise gradually but remain near the levels seen in 2017.

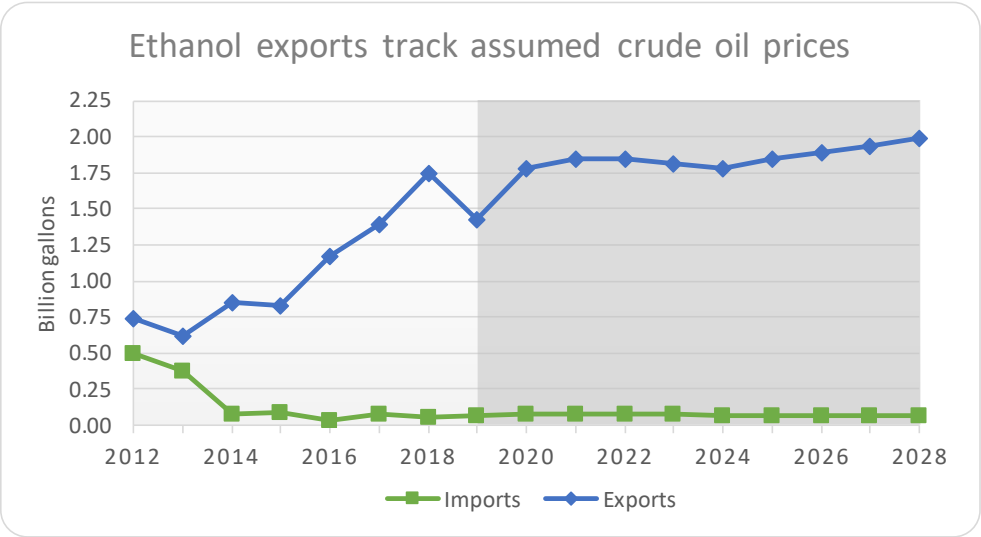


Despite somewhat lower returns than the industry has experienced in the past, the projected increase in prices leads to output of nearly 16.8 billion gallons by 2028. Non-corn sources contribute 0.2 billion gallons to that total. Some of this increase is absorbed by the domestic market as fuel use reaches nearly 15 billion gallons. Much of the rest is used to meet increasing export demand.

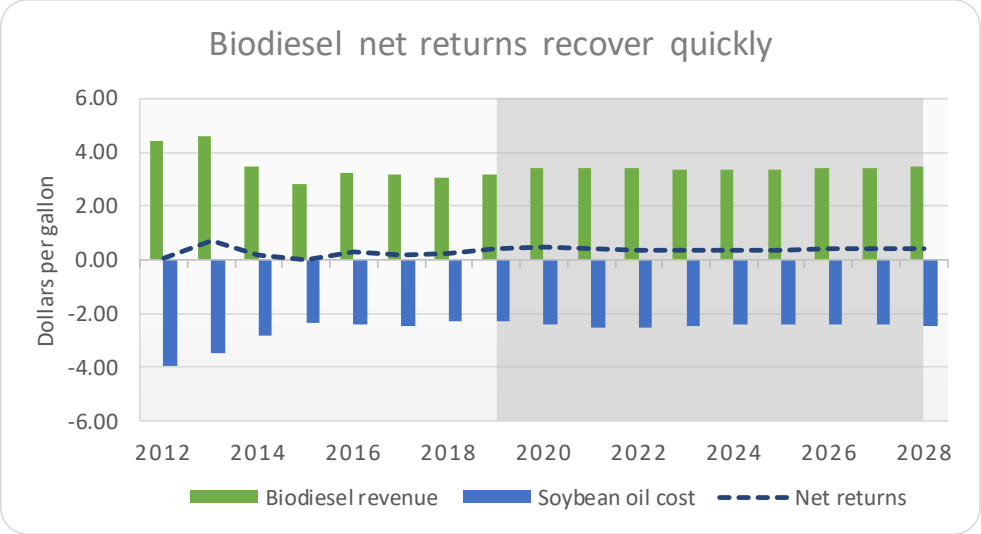


The baseline does not account for the proposed Reid vapor pressure waiver for E15. Regardless, projected use of mid-level blends over time rises with Renewable Fuel Standard (RFS) requirements. The rate of that growth remains a key uncertainty in this outlook.



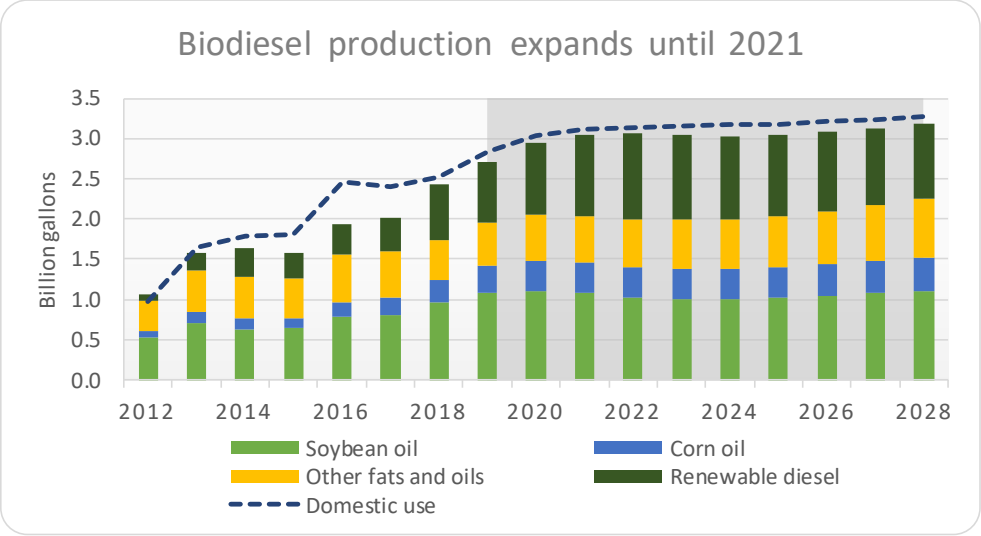


Ethanol exports reached a record level in 2018. However, the lower oil prices assumed in 2019 are projected to lead to somewhat diminished export demand. Looking ahead, ethanol remains price competitive and exports are again supported by rising crude oil prices. Ethanol imports remain low as the RFS requirements for advanced biofuels are expected to be met with additional biomass-based diesel.



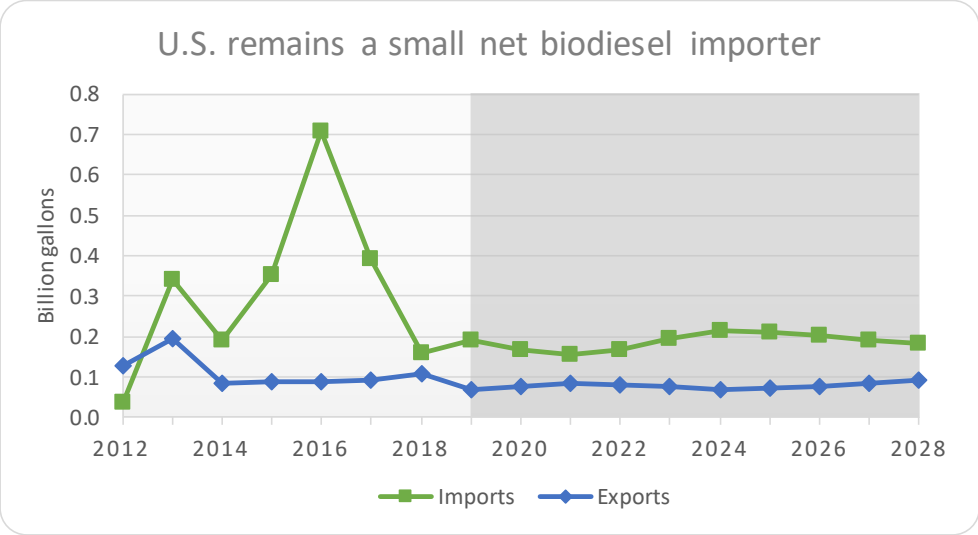
Biomass-based diesel

Continuing restrictions on biodiesel imports as well as a increasing RFS requirements for biomass-based diesel beyond 2019 lead to a projected recovery in biodiesel prices that, along with a relatively flat soybean oil price, result in stronger projected net returns for U.S. biodiesel producers.



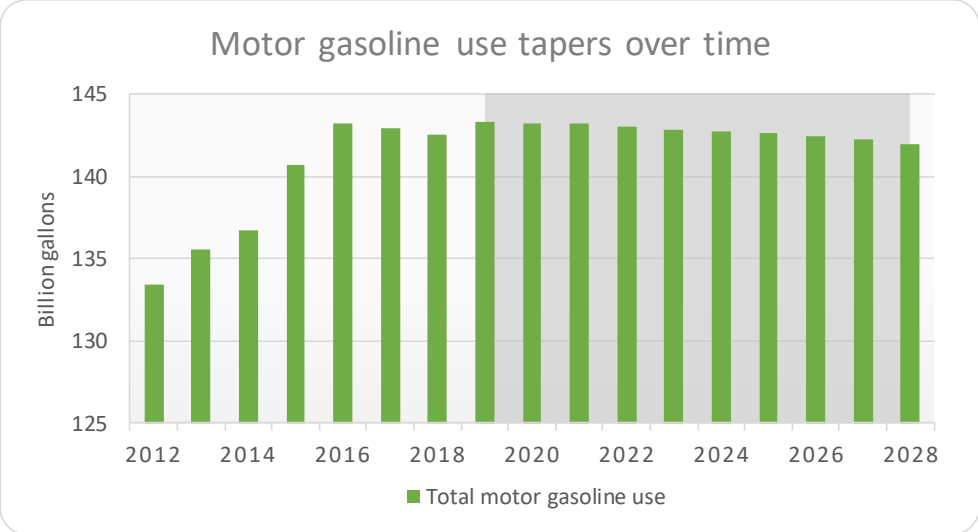
In response, domestic biodiesel production increases to over 3 billion gallons. The share of total biodiesel production from soybean oil remains fairly flat at roughly 50 percent, with additional growth in renewable diesel and biodiesel from corn oil and other fats and oils.

Going forward, biomass-based diesel imports are projected to remain around 190 million gallons, which is near to the level seen in 2014. Biodiesel exports have remained mostly flat the last few years and are expected to remain so for the projection period.

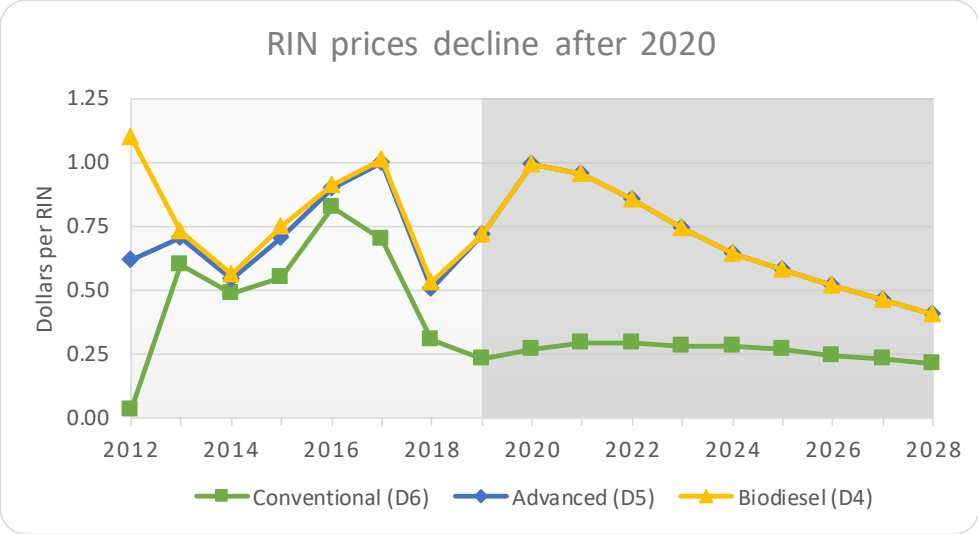


Renewable Fuel Standard

Rising oil prices and slight gains in vehicle fuel efficiency lead to slowly declining motor gasoline use after 2020. Diesel fuel use rises in response to higher GDP and demand for freight. These two factors offset one another to a large extent, so overall motor fuel use remains largely unchanged in the projection period and implies only modest growth in RFS requirements.



Renewable identification number (RIN) prices tumbled in 2018 as details regarding small-refinery exemptions emerged along with discussions of potential policy changes. This projection shows a recovery in the next few years assuming exemptions. RIN prices move a little higher before prices begin to taper toward the end of the 10-year period.



Ethanol supply and use

Calendar year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Petroleum fuel prices					(Dollars per barrel)						
Petroleum, W. Texas Interm.	64.87	55.40	62.62	67.25	69.61	70.12	71.27	72.62	74.19	77.35	80.99
Petroleum, refiners' acquis.	64.63	57.17	61.76	65.96	67.03	67.26	68.30	69.63	71.15	74.07	77.58
					(Dollars per gallon)						
Unl. gasoline, FOB Omaha	2.11	1.92	2.04	2.16	2.21	2.23	2.26	2.30	2.35	2.43	2.53
Unleaded gasoline, retail	2.74	2.51	2.64	2.77	2.82	2.84	2.88	2.93	2.98	3.06	3.16
					(Million gallons)						
Motor gasoline use*	142,587	143,332	143,263	143,198	143,018	142,874	142,745	142,620	142,488	142,281	141,982
Ethanol supply and use											
Production	16,100	15,890	16,277	16,443	16,526	16,522	16,495	16,597	16,661	16,744	16,840
From corn	15,971	15,752	16,130	16,288	16,366	16,356	16,322	16,420	16,480	16,558	16,648
Other conventional	122	126	132	139	143	147	152	155	158	161	165
Cellulosic	8	13	15	16	18	19	21	22	24	25	27
Imports	54	70	76	76	74	72	69	68	64	62	61
Domestic disappearance	14,384	14,507	14,552	14,653	14,735	14,760	14,761	14,801	14,820	14,858	14,899
Exports	1,744	1,430	1,778	1,844	1,845	1,814	1,786	1,848	1,890	1,934	1,988
Ending stocks	994	1,017	1,040	1,063	1,084	1,103	1,120	1,136	1,152	1,166	1,180
Ethanol prices					(Dollars per gallon)						
Conventional rack, Omaha	1.23	1.41	1.47	1.50	1.50	1.51	1.53	1.53	1.54	1.56	1.58
Other advanced rack	1.54	1.90	2.19	2.16	2.07	1.97	1.90	1.84	1.82	1.79	1.78
Effective retail	1.67	1.78	1.80	1.81	1.82	1.84	1.87	1.89	1.92	1.96	2.00
Ethanol/gasoline retail	61%	71%	68%	65%	65%	65%	65%	64%	65%	64%	63%
RIN values											
Conventional ethanol	0.31	0.23	0.27	0.29	0.29	0.28	0.28	0.27	0.24	0.23	0.21
Advanced ethanol	0.51	0.72	0.99	0.95	0.86	0.74	0.64	0.58	0.52	0.46	0.40

* Includes fuel ethanol

All projections are averages across 500 stochastic outcomes.

Renewable Fuel Standard

Calendar year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Applicable percent standard											
Overall	10.67%	10.97%	11.22%	11.47%	11.72%	11.97%	12.22%	12.47%	12.72%	12.97%	13.22%
Advanced biofuels	2.37%	2.71%	2.72%	2.74%	2.75%	2.76%	2.77%	2.79%	2.80%	2.81%	2.82%
Cellulosic biofuel	0.16%	0.23%	0.24%	0.26%	0.27%	0.28%	0.29%	0.31%	0.32%	0.33%	0.34%
Biomass-based diesel	1.74%	1.73%	1.98%	1.99%	2.00%	2.01%	2.02%	2.03%	2.04%	2.05%	2.06%
Required volume						(Million gallons)					
Overall	19,296	19,885	19,910	19,924	19,963	20,009	20,050	20,093	20,142	20,192	20,241
Advanced biofuels	4,296	4,983	5,013	5,041	5,076	5,114	5,152	5,188	5,227	5,264	5,300
Cellulosic biofuel	253	259	262	265	267	270	273	276	279	281	284
Biomass-based diesel	3,154	3,181	3,646	3,668	3,695	3,724	3,753	3,782	3,812	3,840	3,868
Gaps: Conventional	15,000	14,901	14,897	14,883	14,887	14,894	14,899	14,905	14,915	14,928	14,942
Advanced	889	1,543	1,105	1,109	1,114	1,120	1,125	1,131	1,137	1,142	1,147

All projections are averages across 500 stochastic outcomes.

Biomass-based diesel sector

Calendar year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Biomass-based diesel supply					(Million gallons)						
Production	2,438	2,708	2,943	3,043	3,056	3,039	3,021	3,041	3,079	3,134	3,187
From soybean oil	970	1,089	1,096	1,075	1,030	1,006	1,001	1,015	1,042	1,078	1,112
From corn oil	270	322	384	378	378	379	381	389	399	409	417
From other fats and oils	503	545	577	588	595	604	619	638	662	690	718
From cellulosic diesel	0	0	0	0	0	0	0	0	0	0	0
Renewable diesel	694	752	886	1,003	1,054	1,051	1,020	998	976	957	940
Net imports	49	121	93	72	87	117	143	140	127	109	93
Biomass-based diesel use											
Domestic disappearance	2,513	2,840	3,040	3,117	3,144	3,157	3,165	3,181	3,206	3,242	3,279
Ending stocks	153	142	138	137	136	136	136	136	136	136	137
Fuel prices and tax credit					(Dollars per gallon)						
Biodiesel, rack	3.05	3.19	3.40	3.44	3.41	3.36	3.34	3.35	3.38	3.42	3.47
#2 Diesel, refiner sales	2.16	1.86	1.98	2.10	2.15	2.17	2.20	2.24	2.29	2.37	2.47
#2 Diesel, retail	3.18	2.87	3.02	3.14	3.18	3.19	3.23	3.27	3.32	3.40	3.49
Biodiesel tax credit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RIN values											
Per RIN gallon	0.53	0.72	0.99	0.95	0.86	0.74	0.64	0.58	0.52	0.46	0.40
Per physical gallon	0.80	1.08	1.49	1.43	1.28	1.11	0.96	0.87	0.78	0.69	0.61

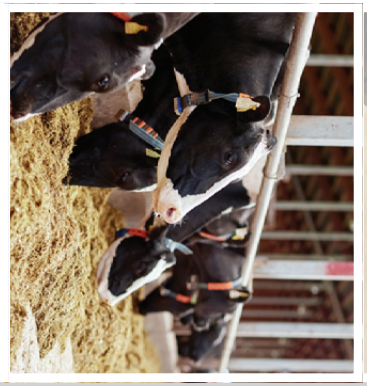
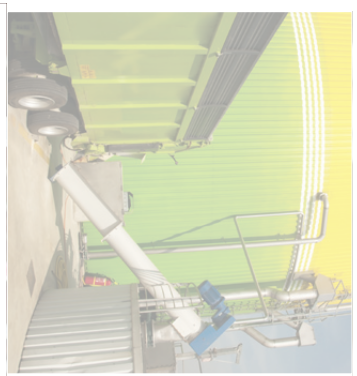
All projections are averages across 500 stochastic outcomes.

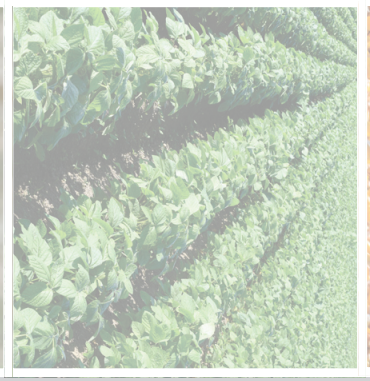
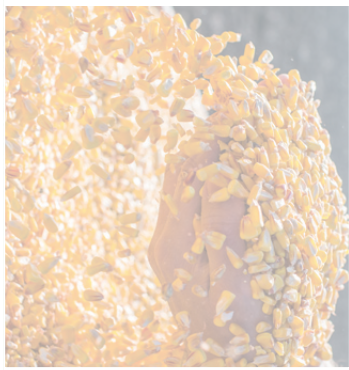
Biofuel plant returns

Calendar year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Biodiesel costs and returns					(Dollars per gallon)						
Biodiesel value	3.05	3.19	3.40	3.44	3.41	3.36	3.34	3.35	3.38	3.42	3.47
Glycerin value	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Soyoil cost	-2.31	-2.29	-2.43	-2.51	-2.51	-2.46	-2.43	-2.43	-2.43	-2.43	-2.45
Other operating costs	-0.59	-0.60	-0.61	-0.61	-0.62	-0.63	-0.64	-0.64	-0.65	-0.66	-0.66
Net operating return	0.24	0.39	0.45	0.39	0.37	0.35	0.35	0.37	0.39	0.41	0.44
Corn milling for ethanol					(Million bushels)						
Corn wet milled for ethanol	503	473	468	474	474	472	471	471	468	467	468
Corn dry milled for ethanol	5,119	5,095	5,227	5,269	5,287	5,275	5,254	5,279	5,293	5,313	5,334
(Share de-oiling DDGS)	88%	88%	89%	89%	90%	90%	90%	90%	90%	90%	91%
Dry mill ethanol costs and returns					(Dollars per gallon)						
Ethanol value	1.23	1.41	1.47	1.50	1.50	1.51	1.53	1.53	1.54	1.56	1.58
Distillers grains value	0.45	0.41	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
Corn oil value*	0.09	0.08	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.07
Corn cost	-1.25	-1.32	-1.39	-1.39	-1.39	-1.36	-1.36	-1.35	-1.35	-1.35	-1.34
Fuel and electricity cost	-0.12	-0.12	-0.10	-0.11	-0.12	-0.13	-0.15	-0.15	-0.15	-0.15	-0.16
Other operating costs	-0.38	-0.39	-0.39	-0.40	-0.40	-0.41	-0.41	-0.42	-0.42	-0.43	-0.43
Net operating return	0.01	0.08	0.10	0.12	0.12	0.12	0.12	0.13	0.13	0.14	0.14

* Weighted by share of dry mills de-oiling DDGS

All projections are averages across 500 stochastic outcomes.

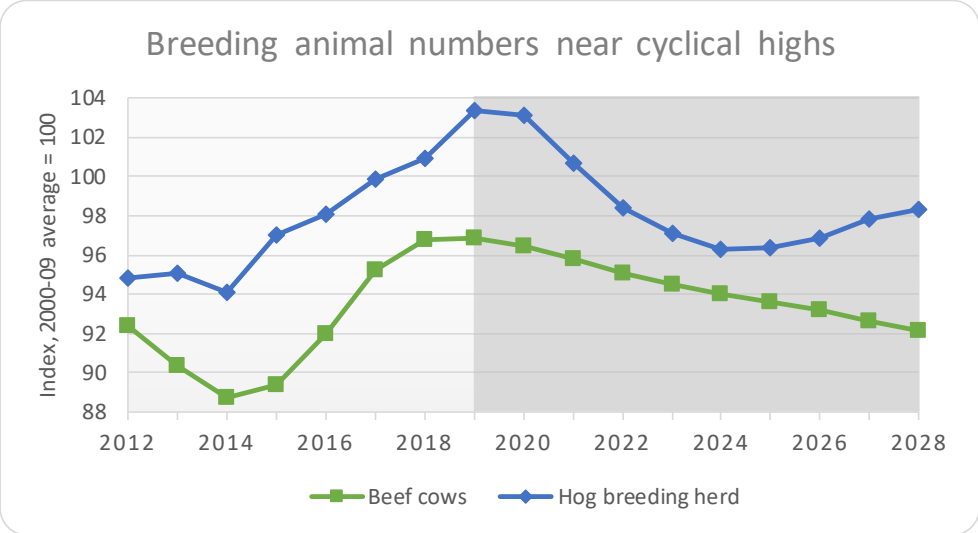




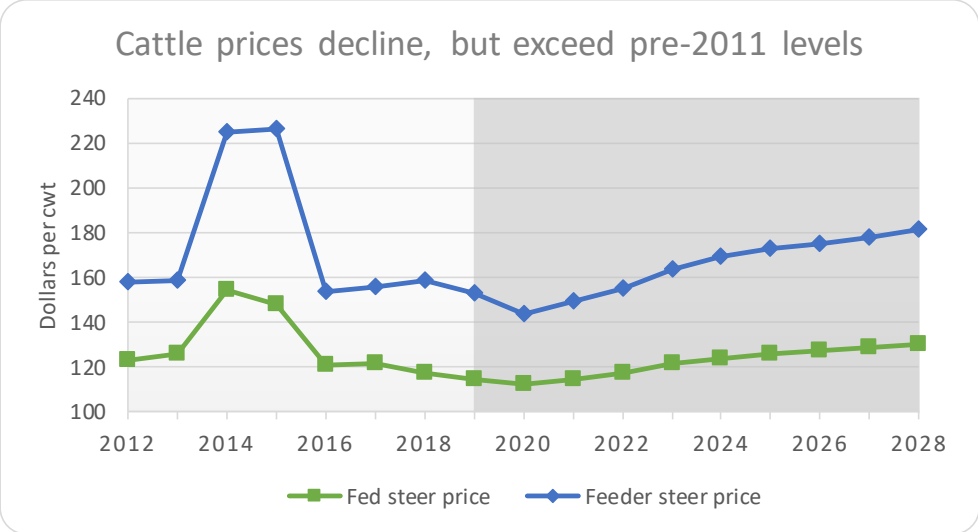
Livestock & dairy

Cattle and hogs

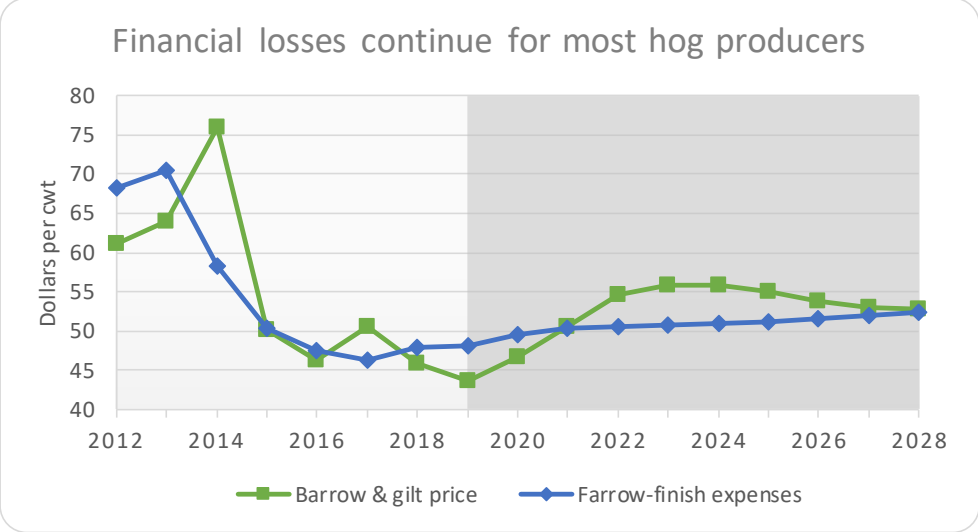
Beef cow and hog breeding herd inventories both increased for the fifth consecutive year to begin 2019. As producer net returns in both industries have declined sharply from the levels that began the recent expansion, herd sizes will begin to contract soon. The extent of reductions will depend upon pasture conditions and feed prices. Productivity growth will partially offset breeding herd declines.

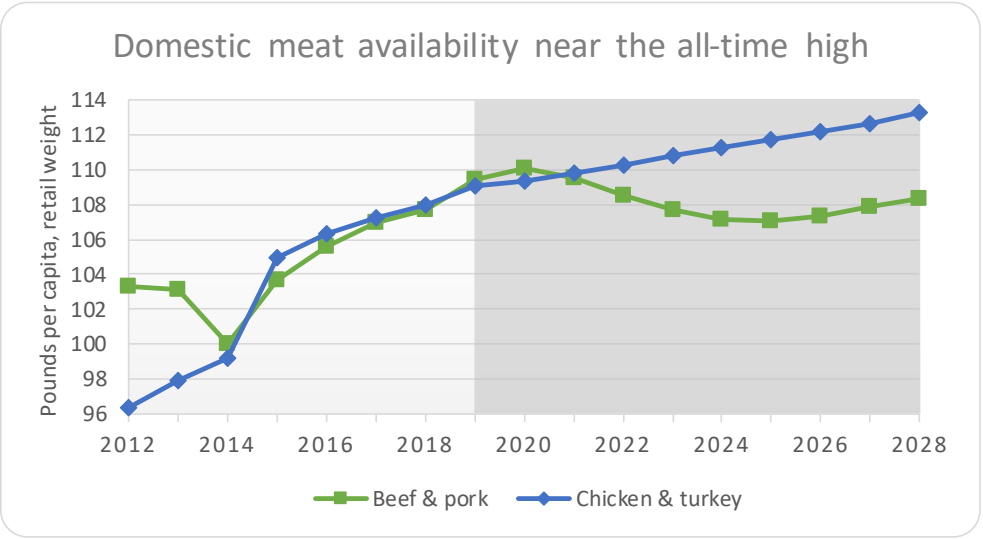


Cattle prices will drift lower through 2020 before inventory reductions lead to beef production declines. Fed cattle prices have already fallen for three of the past four years. Continuing strong consumer demand for beef, particularly high-value cuts, has supported prices well above the levels of previous decades. Cow-calf producers in parts of the country will face challenges with forage availability and hay prices given recent adverse weather conditions.



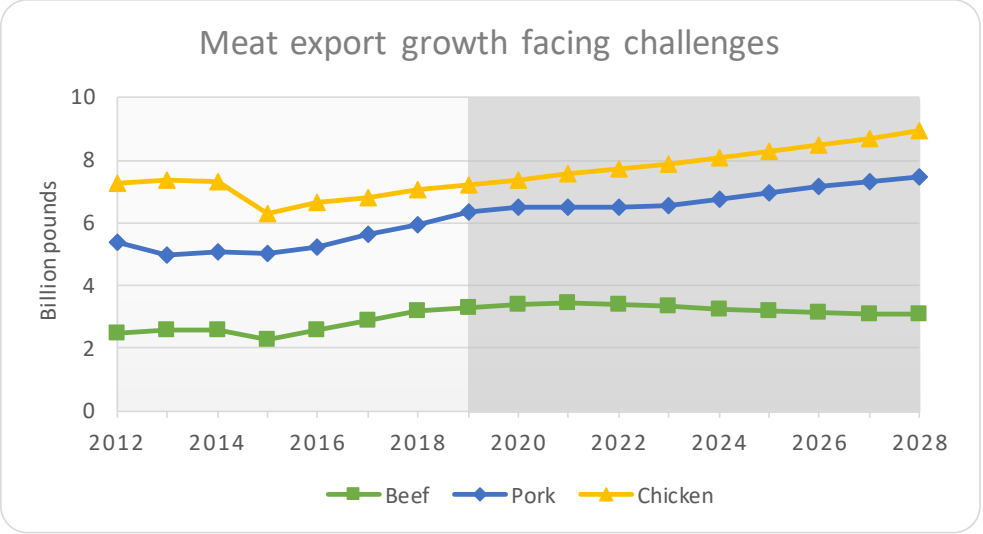
Hog prices have struggled due to burdensome domestic meat supplies and trade challenges. Prices this year and in 2020 are projected to be at or near the lowest since 2009. This has led to financial losses for many producers, even as feed prices remain relatively stable. Additional hog slaughter capacity has allowed record large numbers of hogs to be processed, but domestic demand for pork has not supported hog prices to the same extent that beef demand has supported cattle. Potentially large export gains due to ASF in China remain a possibility.



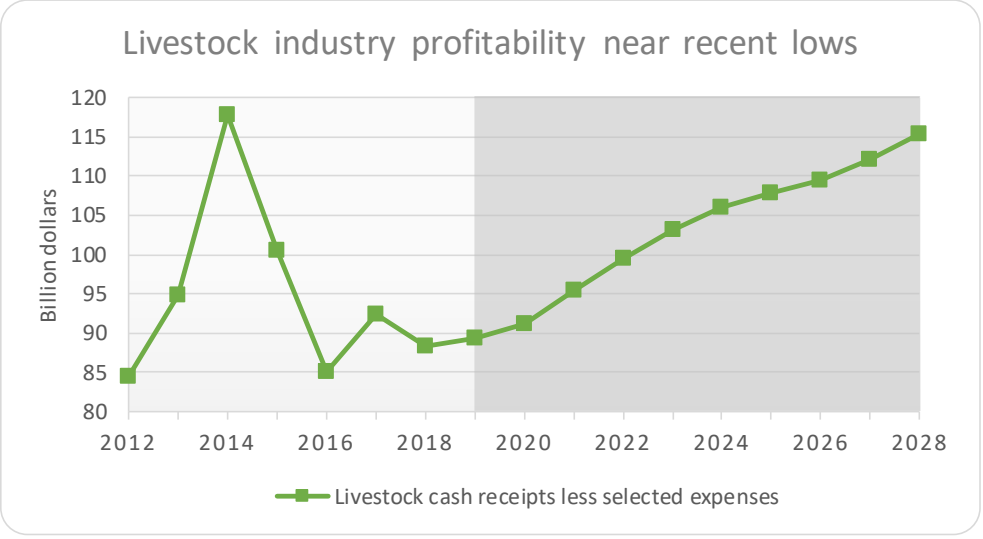


Meat

The amount of meat available for U.S. consumers has fully recovered from the 8.8 percent drop experienced from 2007-2012. The combination of large meat supplies and the economic recession beginning in 2008 resulted in sharp downward corrections to livestock prices in 2009. Though the economy and meat demand appear to be on more solid ground than was the case then, there is growing concern regarding the amount of additional growth that can be sustained without sharp price declines.



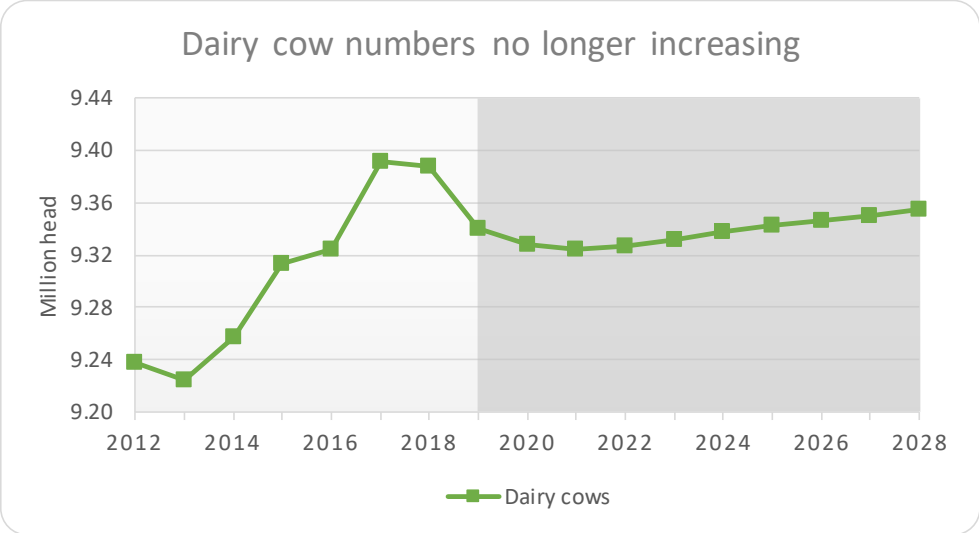
Meat exports have grown in recent years, with total beef, pork and chicken shipments reaching a record 16.2 billion pounds in 2018. It is crucial for livestock and meat industry profitability that exports continue to grow, with further increases in meat production expected for the next couple of years. While retaliatory tariffs have been a prominent concern in recent months, tariff disadvantages in Japan and other key markets have also been highlighted, as new trade agreements not including the U.S. come into force.



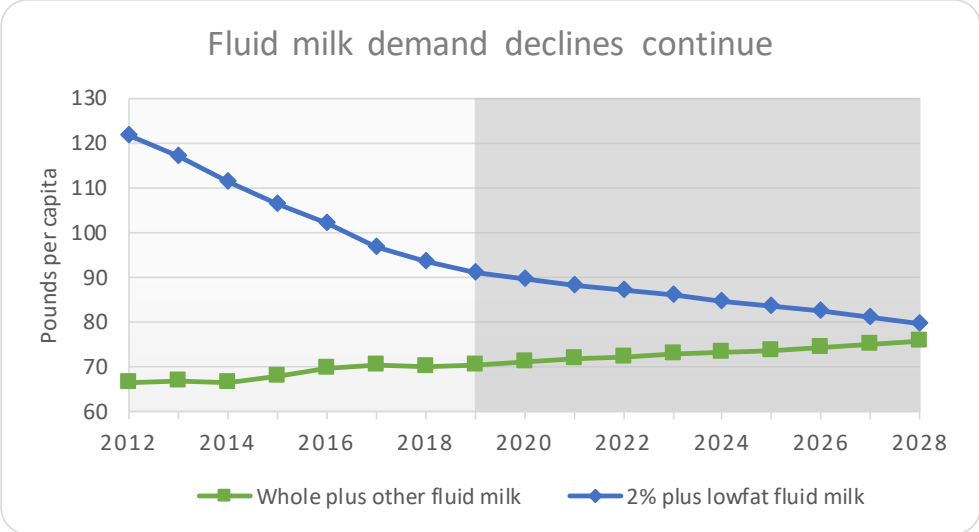
Total livestock receipts less feed and purchased livestock expenses form a rough margin calculation for profitability, even though livestock producers incur many other expenses outside these two categories. Livestock industry net returns are expected to remain mostly flat through 2020, below the record highs of 2014-15, but above levels prior to 2011. Strong consumer demand for meat and dairy products drive projected increases in the long term, though many uncertainties exist regarding economic and trade issues.

Dairy

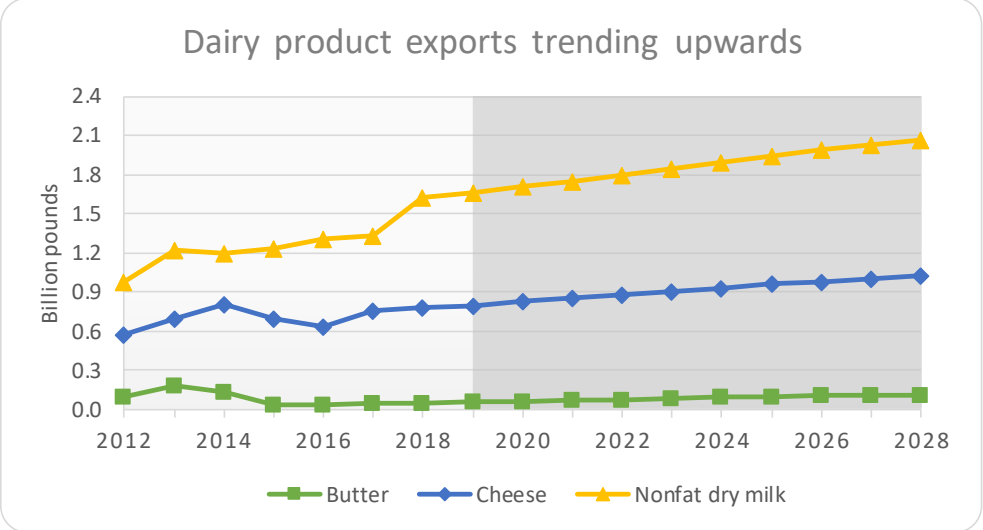
The average dairy cow inventory for 2019 will decline from the previous year by the largest amount since 2010. Though cow numbers in many states have been declining in recent years, a handful of key states, mostly located in the western U.S. and Texas, drove the national increases. While a smaller herd should allow milk prices to recover, margins will remain under pressure for the next couple of years.



Despite positive news regarding consumer demand for many dairy products, total fluid milk consumption continues its long-term decline. While recent trends toward higher demand for milkfat have allowed the sum of whole milk and the other fluid milk category to slowly increase, the sharp decline in 2% and lowfat fluid milk continues. This has pressured the industry to identify growth markets for both exports and domestic non-fluid products.



Exports of nonfat dry milk totaled 1.6 billion pounds in 2018, an increase of nearly 18 percent from 2017. Further expected growth this year will help nonfat dry milk prices begin to recover from the lowest annual levels since 1988. Cheese and butter export quantities also increased to a lesser extent. Despite advances in export quantities, the total value of dairy exports in 2018 was up less than two percent. Increasing the volume and value of exports remains crucial to U.S. dairy industry profitability.



Cattle and hogs

Calendar year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
CATTLE					(Million head)						
Beef cows (Jan. 1)	31.7	31.8	31.6	31.4	31.2	31.0	30.8	30.7	30.5	30.4	30.2
Dairy cows (Jan. 1)	9.4	9.4	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.4
Cattle and calves (Jan. 1)	94.4	94.7	94.3	93.5	92.6	91.9	91.3	90.8	90.4	90.0	89.5
Cattle on feed (Jan. 1)	14.0	14.5	14.4	14.5	14.3	14.2	14.1	14.0	13.9	13.9	13.8
Calf crop	36.3	36.3	36.1	35.9	35.6	35.4	35.3	35.1	34.9	34.7	34.5
Cattle slaughter	33.7	34.3	34.7	34.5	34.2	33.9	33.6	33.4	33.3	33.1	33.0
Cattle imports	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.2
Cattle exports	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Prices											
Total all grades,					(Dollars per hundredweight)						
5-Area direct steers	117.12	114.17	112.38	114.78	117.51	121.28	123.93	125.74	127.08	128.63	130.29
600-650#, Oklahoma City feeder steers	158.98	153.30	143.92	149.47	155.27	163.61	169.29	172.98	175.32	178.18	181.35
Utility cows, Sioux Falls	61.19	60.51	58.84	60.85	63.03	66.05	68.18	69.61	70.65	71.83	73.10
Cow-calf returns					(Dollars per cow)						
Receipts	774.12	757.13	733.47	763.30	797.36	838.44	866.95	886.32	898.59	913.74	929.90
Feed expenses	416.39	425.76	428.90	431.30	432.83	436.30	437.82	440.13	442.60	446.33	450.69
Non-feed expenses	281.43	285.27	288.42	298.70	308.41	319.02	328.30	336.81	344.70	353.37	363.12
Net returns	76.31	46.11	16.15	33.31	56.12	83.11	100.83	109.38	111.30	114.04	116.08
HOGS					(Million head)						
Hogs for breeding (Dec. 1*)	6.18	6.33	6.31	6.16	6.02	5.94	5.89	5.90	5.93	5.99	6.02
Market hogs (Dec. 1*)	67.0	68.2	69.4	69.5	68.7	68.2	68.2	68.6	69.4	70.6	71.8
Sows farrowed	12.48	12.70	12.62	12.37	12.17	12.06	12.04	12.10	12.22	12.35	12.43
Pig crop	133.2	137.0	137.5	136.1	135.2	135.4	136.4	138.4	141.1	144.0	146.3
Barrow and gilt slaughter	121.2	124.7	126.2	125.8	124.7	124.5	125.1	126.5	128.6	131.1	133.4
Hog imports	5.3	5.3	5.3	5.3	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Hog exports	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Prices											
Natl. base 51-52% lean equiv.					(Dollars per hundredweight)						
barrows and gilts	45.93	43.69	46.62	50.55	54.63	55.79	55.82	55.08	53.85	53.08	52.84
Farrow-finish returns											
Receipts	45.65	43.27	46.24	50.22	54.37	55.54	55.57	54.82	53.57	52.79	52.55
Feed expenses	27.72	27.83	29.05	29.35	29.33	29.16	29.19	29.04	29.16	29.22	29.17
Non-feed expenses	20.13	20.20	20.54	20.91	21.24	21.52	21.83	22.13	22.44	22.81	23.22
Net returns	-2.20	-4.76	-3.35	-0.04	3.79	4.85	4.55	3.64	1.97	0.77	0.16

* Preceding year
All projections are averages across 500 stochastic outcomes.

Meat sector

Calendar year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Beef					(Million pounds)						
Production	26,927	27,620	28,094	28,089	27,978	27,874	27,787	27,750	27,731	27,717	27,699
Imports	2,994	3,006	3,067	3,101	3,134	3,174	3,229	3,268	3,310	3,344	3,377
Domestic use	26,704	27,331	27,743	27,765	27,728	27,719	27,751	27,826	27,897	27,957	28,000
Exports	3,180	3,291	3,401	3,420	3,384	3,329	3,262	3,188	3,140	3,099	3,072
Ending stocks	685	689	707	711	712	712	715	719	724	728	732
Pork											
Production	26,333	27,262	27,683	27,694	27,595	27,646	27,893	28,323	28,917	29,594	30,238
Imports	1,059	1,060	1,059	1,092	1,121	1,111	1,093	1,074	1,058	1,042	1,034
Domestic use	21,483	21,976	22,238	22,283	22,213	22,187	22,237	22,422	22,803	23,288	23,756
Exports	5,939	6,323	6,493	6,506	6,510	6,569	6,739	6,958	7,149	7,322	7,492
Ending stocks	525	548	559	556	549	549	559	575	598	623	647
Broiler											
Production	42,080	42,798	43,423	44,001	44,614	45,263	45,897	46,549	47,223	47,910	48,650
Domestic use	35,092	35,782	36,174	36,582	37,025	37,495	37,957	38,420	38,880	39,350	39,865
Exports	7,081	7,192	7,380	7,552	7,723	7,901	8,074	8,265	8,480	8,698	8,923
Ending stocks	900	861	868	874	881	888	895	903	910	917	925
Turkey											
Production	5,890	5,900	5,946	5,999	6,044	6,078	6,103	6,125	6,143	6,161	6,184
Domestic use	5,314	5,321	5,353	5,395	5,432	5,459	5,477	5,492	5,503	5,513	5,529
Exports	606	610	617	626	634	642	650	658	666	674	682
Ending stocks	300	289	286	285	286	285	284	282	280	278	275
Wholesale prices					(Dollars per hundredweight)						
Boxed beef cutout	214.05	208.27	207.90	213.80	221.39	230.61	237.09	241.61	246.21	251.09	257.92
Pork cutout	75.19	72.71	78.48	85.48	93.00	95.57	95.74	94.69	92.92	91.89	91.60
National wholesale broiler	97.80	95.65	95.32	95.74	95.70	96.01	96.11	96.26	96.65	97.58	98.69
Natl. wholesale turkey hens	80.20	86.27	89.83	92.09	92.72	93.37	93.76	94.02	94.27	95.25	96.48
Retail prices					(Dollars per pound)						
Beef	5.92	5.87	5.85	6.02	6.25	6.48	6.69	6.85	7.01	7.16	7.35
Pork	3.74	3.68	3.83	4.05	4.25	4.38	4.39	4.37	4.34	4.32	4.32
Broiler	1.87	1.87	1.87	1.90	1.93	1.96	1.99	2.01	2.04	2.08	2.12
Turkey	1.50	1.52	1.58	1.63	1.66	1.69	1.71	1.73	1.76	1.79	1.82
Per-capita consumption					(Pounds, retail)						
Beef	56.9	57.9	58.3	58.0	57.5	57.1	56.8	56.5	56.3	56.1	55.8
Pork	50.8	51.6	51.8	51.6	51.0	50.6	50.4	50.5	51.0	51.8	52.5
Broiler	91.8	92.9	93.3	93.7	94.2	94.7	95.3	95.8	96.3	96.9	97.5
Turkey	16.2	16.1	16.1	16.1	16.1	16.1	16.0	15.9	15.9	15.8	15.7
Total	215.7	218.5	219.5	219.3	218.8	218.5	218.4	218.8	219.5	220.6	221.6

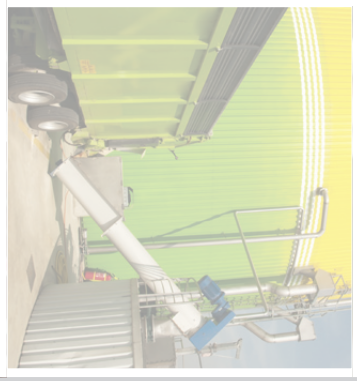
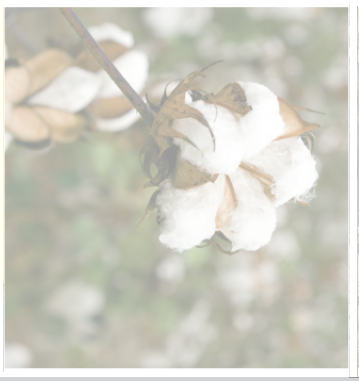
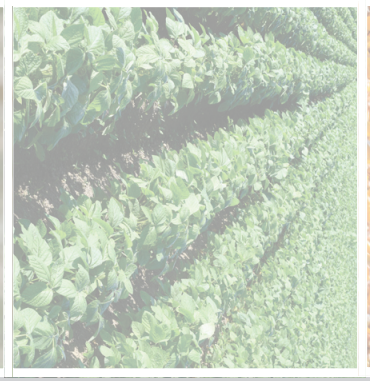
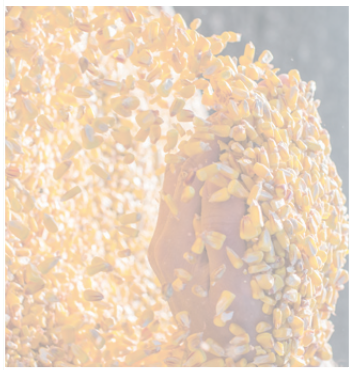
All projections are averages across 500 stochastic outcomes.

Dairy sector

Calendar year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Milk supply											
Dairy cows (thousand head)	9,388	9,339	9,328	9,328	9,328	9,331	9,336	9,341	9,344	9,348	9,353
California	1,734	1,717	1,706	1,699	1,692	1,686	1,683	1,680	1,677	1,675	1,674
Wisconsin	1,273	1,267	1,265	1,264	1,263	1,262	1,261	1,260	1,258	1,257	1,255
New York	623	620	620	620	620	620	619	619	618	618	617
Idaho	607	608	610	613	616	619	622	626	629	632	634
Pennsylvania	520	513	510	506	503	501	499	497	495	493	491
Minnesota	453	448	446	444	442	440	439	437	436	434	433
Texas	528	538	548	558	566	574	581	587	592	597	601
Michigan	423	421	422	423	426	429	432	436	440	444	448
New Mexico	330	328	328	329	331	331	332	332	332	333	334
Ohio	257	252	249	246	244	242	240	238	236	233	231
Rest of U.S.	2,639	2,627	2,625	2,625	2,624	2,626	2,628	2,630	2,631	2,632	2,633
Milk yield (lbs per cow)	23,190	23,579	23,896	24,174	24,457	24,743	25,023	25,303	25,582	25,864	26,154
Milk production (billion lbs)	217.7	220.2	222.9	225.5	228.1	230.9	233.6	236.3	239.0	241.8	244.6
Min. FMMO class prices					(Dollars per hundredweight)						
Class I mover	14.84	15.71	16.10	16.25	16.46	16.60	16.72	16.67	16.78	16.90	17.10
Class II	14.80	15.67	16.11	16.24	16.44	16.58	16.65	16.66	16.77	16.84	16.98
Class III	14.61	15.35	15.60	15.78	16.00	16.13	16.30	16.20	16.31	16.49	16.75
Class IV	14.23	14.97	15.41	15.54	15.74	15.88	15.95	15.96	16.07	16.14	16.28
All milk price	16.23	17.02	17.36	17.51	17.72	17.86	17.98	17.93	18.03	18.17	18.37
Actual dairy prod. margin	7.53	8.58	8.65	8.86	9.03	9.16	9.15	9.24	9.37	9.58	9.88
Wholesale prices					(Dollars per pound)						
Butter, CME	2.25	2.12	2.10	2.06	2.04	2.06	2.06	2.07	2.10	2.13	2.18
Cheese, Amer., 40#, CME	1.55	1.53	1.54	1.56	1.58	1.59	1.60	1.59	1.60	1.62	1.64
Nonfat dry milk, AA	0.81	0.96	1.03	1.06	1.09	1.10	1.11	1.10	1.10	1.09	1.08
Dairy product production					(Million pounds)						
American cheese	5,170	5,239	5,317	5,393	5,460	5,529	5,601	5,671	5,738	5,806	5,876
Other cheese	7,785	7,912	8,047	8,170	8,283	8,398	8,511	8,624	8,738	8,858	8,985
Butter	1,884	1,926	1,973	2,022	2,056	2,090	2,121	2,152	2,181	2,206	2,233
Nonfat dry milk	2,330	2,448	2,508	2,561	2,619	2,678	2,748	2,813	2,868	2,923	2,977
Dairy product exports											
American cheese	165	167	182	192	202	214	225	236	245	253	261
Other cheese	614	626	648	663	677	693	708	723	737	750	763
Butter	52	55	65	71	78	86	94	101	103	105	106
Nonfat dry milk	1,621	1,657	1,710	1,750	1,797	1,841	1,895	1,945	1,986	2,023	2,059
Per-capita consumption					(Pounds)						
Butter	5.8	5.9	6.0	6.0	6.1	6.1	6.1	6.2	6.2	6.2	6.3
Nonfat dry milk	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.6	2.6
Total cheese	37.9	38.2	38.5	38.8	39.0	39.2	39.4	39.6	39.8	40.1	40.3
American	15.3	15.4	15.5	15.6	15.7	15.7	15.8	15.8	15.9	16.0	16.0
Other	22.6	22.8	23.0	23.2	23.4	23.5	23.6	23.8	23.9	24.1	24.3
Total fluid milk	163.7	161.7	160.6	159.9	159.2	158.6	157.8	157.2	156.6	155.9	155.3

All projections are averages across 500 stochastic outcomes.

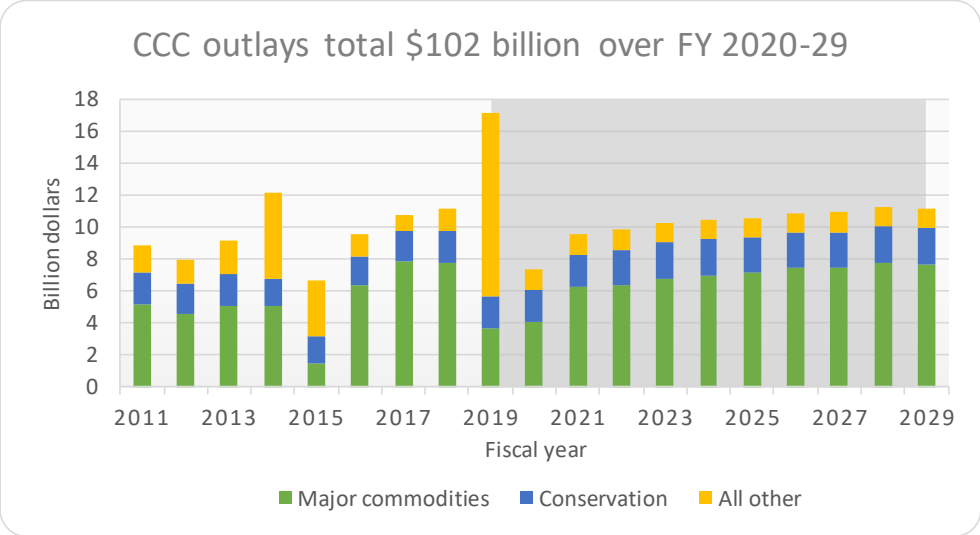


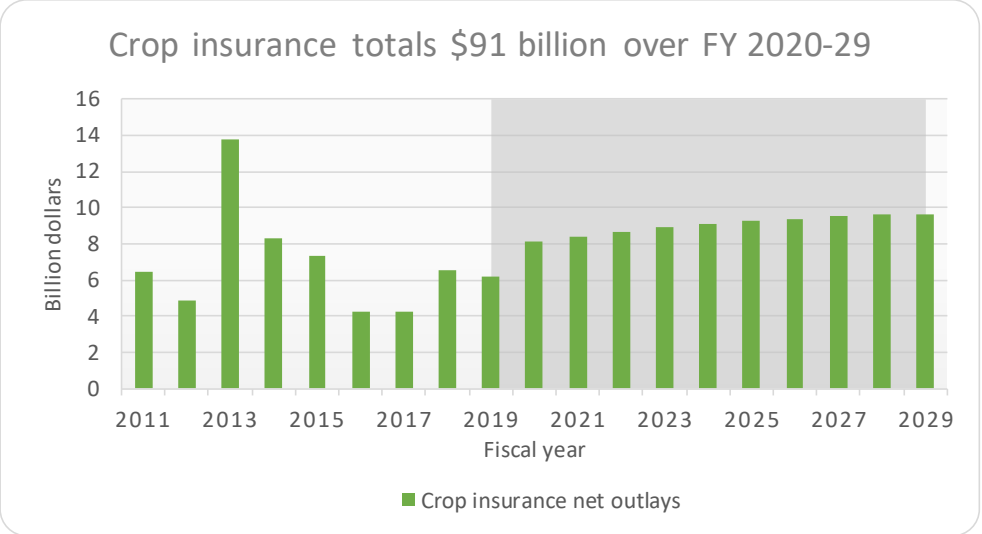
Aggregate indicators

Government costs

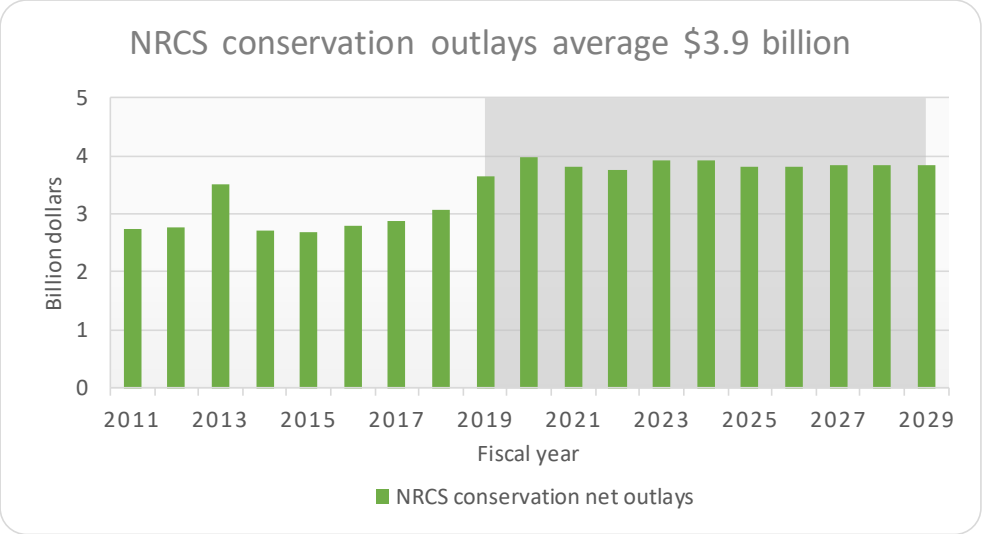
Net Commodity Credit Corporation (CCC) outlays increase sharply in FY 2019, primarily because of more than $8 billion in MFP payments as part of the Administration's trade mitigation package. Without another round of MFP payments, outlays drop sharply in FY 2020, but then rebound as more producers elect PLC. Between FY 2020 and FY 2029, net CCC outlays total $102 billion, with major commodity programs accounting for $68 billion.

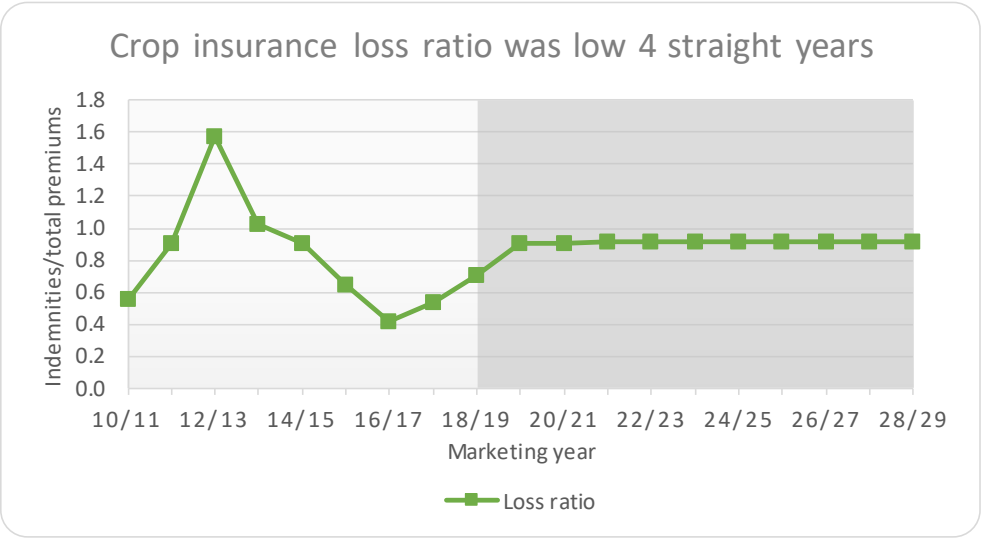


Mandatory outlays under the federal crop insurance program were unusually low from FY 2016 to FY 2018, primarily because good yields reduced indemnity payments. Another year of smaller-than-average losses on the 2018 crop is expected to keep programs costs in check in FY 2019. Normal variability, particularly in yields, results in higher projected outlays, with total program fiscal costs of $91 billion between FY 2020 and FY 2029.



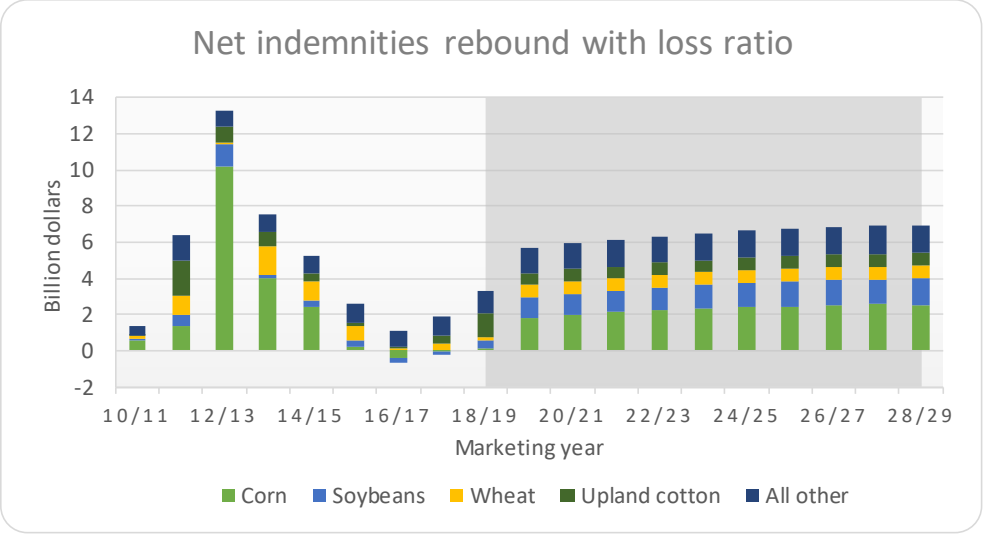
The Natural Resources Conservation Service (NRCS) operates several mandatory conservation programs, including the Environmental Quality Incentives Program and the Conservation Stewardship Program. The Congressional Budget Office estimated in 2019 that spending on these programs would increase to $3.9 billion per year from FY 2020 to FY 2029. Note that the Conservation Reserve Program is managed by the Farm Service Agency, and its outlays are included in the CCC accounts.



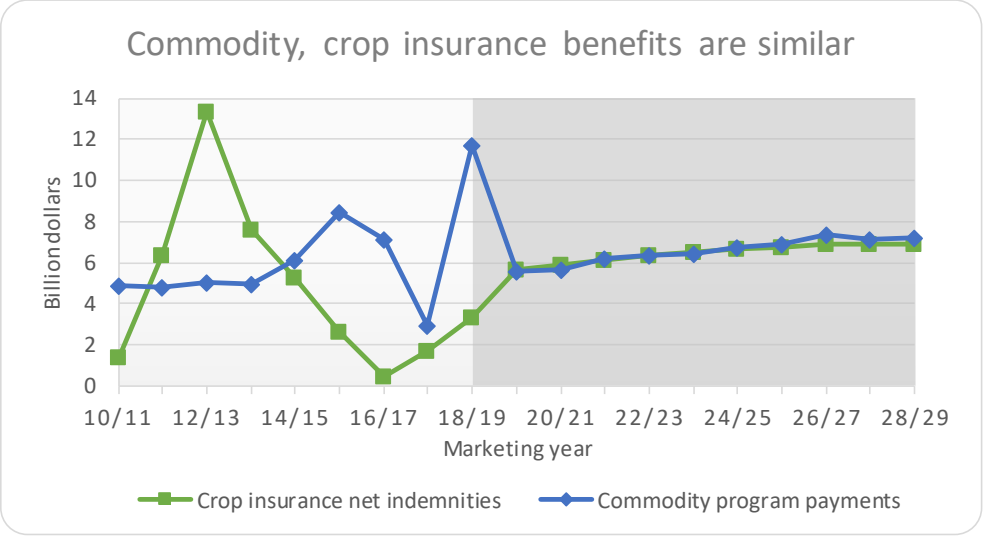


Crop insurance

Crop insurance indemnity payments for losses have been unusually low for four straight years because yields have been at or above trend for most major crops. This has kept the loss ratio (indemnity payments divided by total premiums, including both producer-paid and government subsidized premiums) well below 1.0. In the projection period, the distribution of yields, indemnities and premiums results in an average loss ratio of about 0.91.



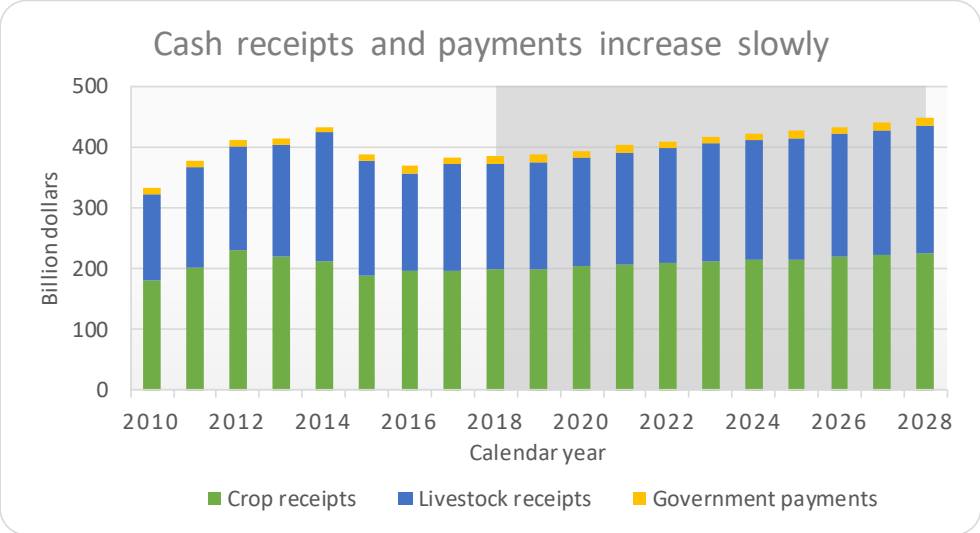
Net indemnities are the difference between indemnity payments for losses and producer-paid premiums. Net indemnities peaked in the drought year of 2012, but record yields resulted in negative net indemnities for some crops in 2016. The projected return to normal loss ratios in 2019 and later years results in average net indemnities of $6.5 billion per year. As with the loss ratio, actual net indemnities in any given year can be much higher or lower than these stochastic average values.



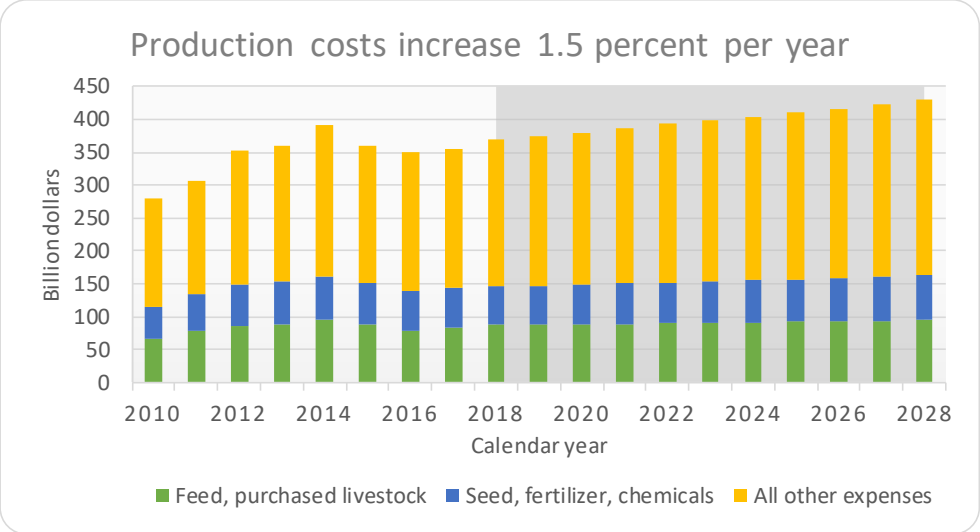
Crop insurance net indemnities can be much greater or smaller than payments under farm bill crop commodity programs (currently ARC, PLC, MFP and marketing loans). One-time payments under MFP account for the spike in 2018/19 commodity program payments. From 2019/20 through 2028/29, average commodity program payments and crop insurance net indemnities are very similar. Years with high yields and low prices generally result in high PLC payments but low crop insurance net indemnities.

Farm income, expenses

Farm cash receipts have increased since 2016 but remain well below the values of 2012-2014, when commodity prices were higher. Projected crop receipts increase in 2020 because of higher prices and in later years because of rising production. Livestock receipts reflect cyclical changes in prices and production. MFP accounts for large government payments in calendar years 2018 and 2019. Government payments average $12 billion per year from 2019-2028.

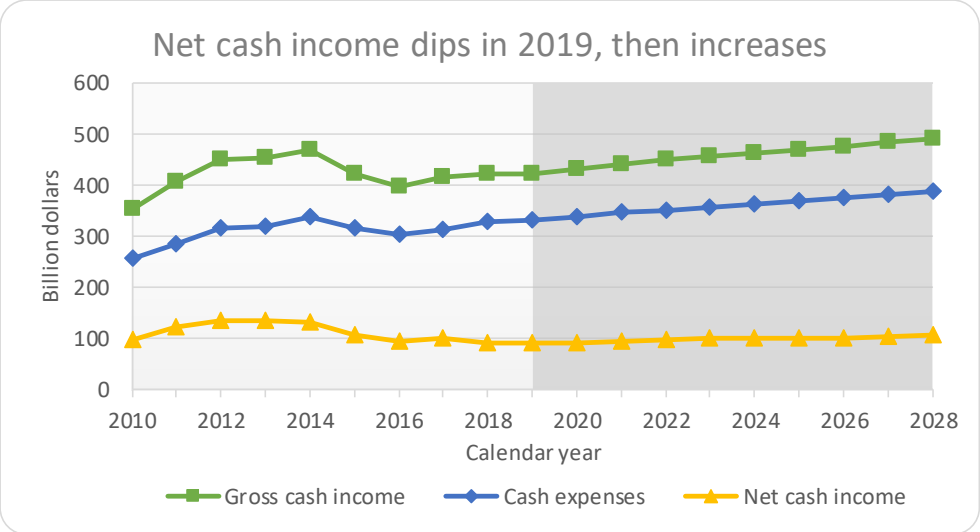


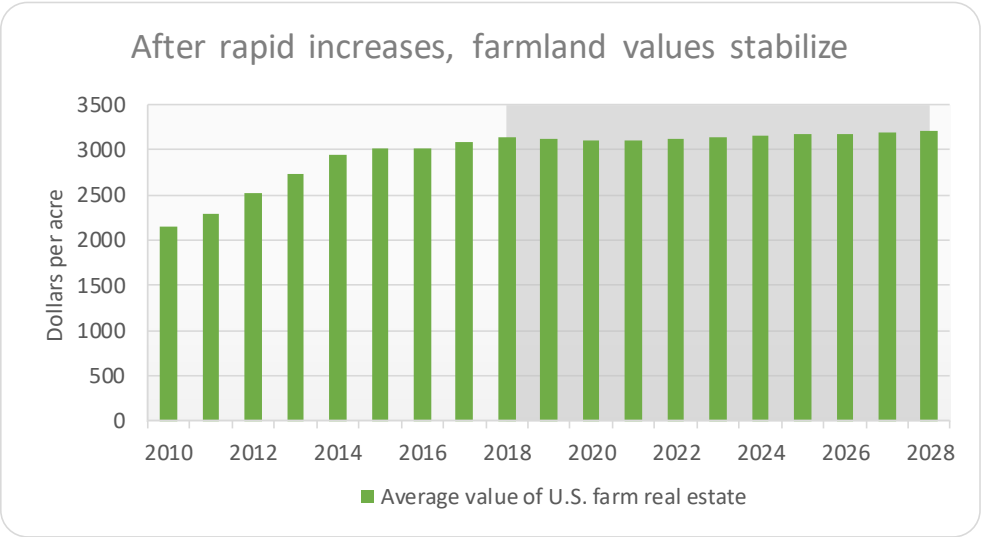
Farm production expenses increased in 2018, with higher costs for feed, fuel, labor and interest payments. Projected production expenses increase by an average of 1.5 percent per year from 2019 to 2028, reflecting increasing production and modest increases in most input prices. Only in 2022 do average production expenses exceed the 2014 record value.



Net cash income for the farm sector declined by $10 billion in 2018 because of a large increase in production costs. A further slight decline is projected for 2019 before nominal net cash income increases in later years at a modest pace.

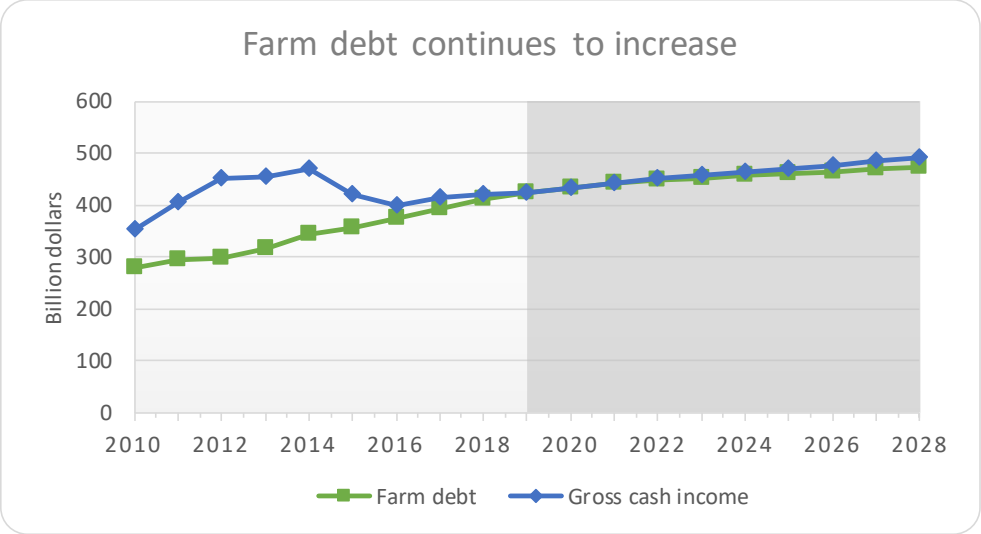
Net farm income, an alternative measure that accounts for non-money income, depreciation and changes in the value of farm inventories, shows an increase in 2019, primarily because of a smaller negative inventory change in 2019 than in 2018.



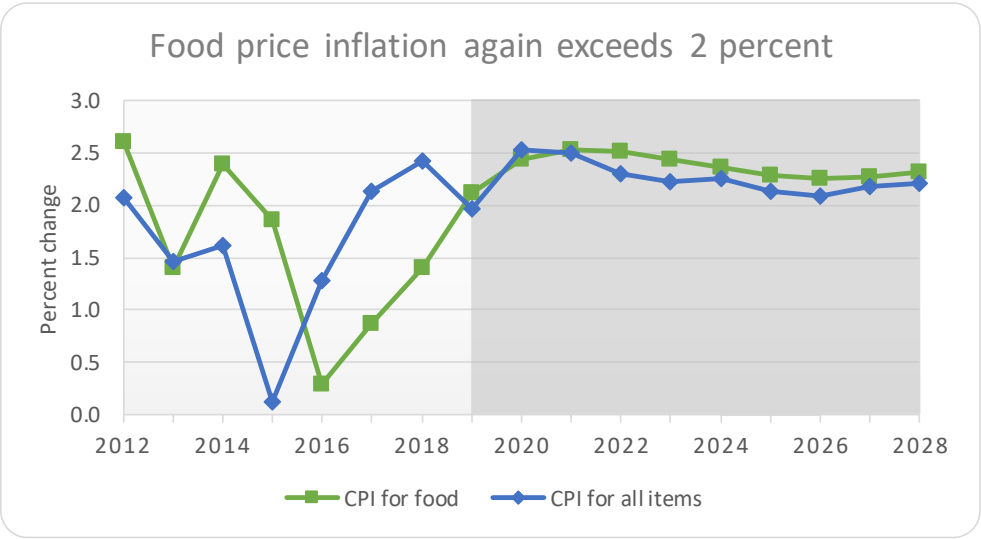


Farm assets and debt

The average value of farm real estate increased by 50 percent between 2009 and 2018. Projected cropland rental rates increase slightly. The average value of farm real estate does not keep pace in 2019 and 2020 in part because of higher interest rates. Real estate accounts for more than 80 percent of total farm assets. The value of farm assets is stable at around $3 trillion for the next several years.



Farm debt continued to increase when gross cash income fell in 2015 and 2016. In 2019, the total value of farm debt is approximately equal to annual gross cash income. With asset values stable or increasing very slowly, the increase in farm debt puts continued pressure on farm finances.



Consumer food prices

Food price inflation has been lower than overall consumer price inflation since 2016. Slowly rising food prices will result in food inflation in the 2.0 to 2.5 percent range in coming years. While this is above recent levels, it remains below the average food inflation of 3.1 percent from 2007 to 2012. U.S. consumers continue to spend a growing percentage of their food dollars on dining away from home. Rising energy prices also contribute to projected increases in food costs.

Net government outlays

Fiscal year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
					(Million dollars)						
Feed grains											
Corn	583	568	1,756	1,924	2,229	2,371	2,478	2,653	2,688	2,873	2,803
Sorghum	242	204	231	228	235	237	236	252	250	269	276
Barley	99	70	95	101	111	116	117	114	113	125	122
Oats	14	7	8	8	9	9	9	10	10	11	10
Food grains											
Wheat	1,032	543	826	977	1,050	1,110	1,121	1,178	1,195	1,262	1,299
Rice	460	584	460	480	465	463	454	452	411	398	380
Oilseeds											
Soybeans	225	445	838	738	778	787	824	950	981	996	942
Peanuts	247	271	274	267	286	293	300	299	292	322	323
Other oilseeds	90	110	124	108	110	110	109	106	109	117	116
Other selected commodities											
Upland cotton	96	675	1,047	1,011	998	947	956	914	917	952	953
Dairy	567	598	579	552	531	548	542	520	508	454	454
Subtotal, selected commodities	3,655	4,074	6,237	6,393	6,800	6,988	7,145	7,448	7,472	7,780	7,680
CCC conservation											
Conservation reserve	2,016	2,002	2,073	2,167	2,218	2,243	2,179	2,167	2,199	2,247	2,247
Other CCC conservation	1	1	1	1	1	1	1	1	1	1	1
Other CCC											
Market facilitation program	8,855	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Disaster payments, NAP	628	616	628	624	621	621	618	612	605	605	604
Other net costs	2,000	653	640	644	641	627	628	633	640	645	645
Net CCC outlays	17,155	7,346	9,579	9,829	10,281	10,480	10,572	10,862	10,917	11,278	11,177
NRCS conservation	3,646	3,984	3,804	3,758	3,930	3,918	3,800	3,809	3,850	3,851	3,851
Crop insurance	6,217	8,149	8,430	8,640	8,895	9,123	9,288	9,384	9,546	9,586	9,605
Total mandatory outlays	27,018	19,479	21,813	22,227	23,106	23,522	23,659	24,055	24,313	24,715	24,633

Note: "NRCS conservation" denotes mandatory spending on conservation programs authorized by the 2002, 2008, 2014 and 2018 farm bills that is not included in reported CCC outlays. "NAP" is the Noninsured Crop Disaster Assistance Program. Fiscal years begin on Oct. 1 of the previous calendar year (FY 2019: Oct. 1, 2018-Sep. 30, 2019).

All projections are averages across 500 outcomes.

Selected direct government payments

Marketing year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
					(Million dollars)						
ARC payments	1,012	634	592	600	639	678	786	775	779	785	802
PLC payments	1,837	4,478	4,591	5,015	5,162	5,212	5,335	5,424	5,872	5,750	5,806
Marketing loans	0	428	452	549	567	550	592	718	689	589	588
Market facilitation payments	8,855	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total	11,704	5,540	5,635	6,164	6,368	6,440	6,713	6,917	7,339	7,123	7,195

Note: Includes selected payments for feed grains, food grains, oilseeds, and upland cotton.
All projections are averages across 500 outcomes.

Crop insurance

Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
					(Million dollars, crop year)						
Total premiums	9,887	10,572	10,957	11,236	11,580	11,968	12,219	12,381	12,582	12,693	12,753
Producer-paid premiums	3,628	3,889	4,034	4,145	4,274	4,420	4,513	4,572	4,646	4,688	4,711
Premium subsidies	6,259	6,683	6,924	7,091	7,306	7,548	7,706	7,809	7,936	8,005	8,043
Total indemnities	6,943	9,564	9,957	10,244	10,597	10,925	11,161	11,285	11,519	11,582	11,623
Loss ratio	0.70	0.90	0.91	0.91	0.92	0.91	0.91	0.91	0.92	0.91	0.91
					(Million dollars, crop year)						
Net indemnities	3,315	5,675	5,923	6,099	6,323	6,505	6,649	6,712	6,873	6,894	6,912
Corn	164	1,807	1,976	2,124	2,273	2,363	2,430	2,448	2,539	2,558	2,552
Soybeans	389	1,130	1,148	1,197	1,239	1,282	1,332	1,359	1,402	1,406	1,419
Wheat	201	680	670	688	690	703	713	714	712	708	719
Upland cotton	1,289	683	714	663	672	676	679	693	708	703	700
All other	1,272	1,375	1,415	1,428	1,448	1,481	1,496	1,499	1,512	1,519	1,522
					(Million dollars, fiscal year)						
Net outlays	6,525	6,217	8,149	8,430	8,640	8,895	9,123	9,288	9,384	9,546	9,586

All projections are averages across 500 outcomes.

Farm cash receipts

Calendar year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
					(Billion dollars)						
Feed grains	56.57	59.49	62.15	62.75	63.51	63.65	63.98	64.60	65.54	66.57	67.45
Food grains	11.68	12.56	12.69	12.75	12.59	12.55	12.54	12.57	12.67	12.76	12.79
Oilseeds	42.24	38.17	39.68	40.17	40.27	40.41	40.62	40.92	41.34	41.91	42.31
Cotton	7.82	7.44	7.63	7.88	7.98	8.05	8.16	8.25	8.31	8.40	8.47
Sugar	2.57	2.54	2.61	2.69	2.71	2.71	2.70	2.69	2.68	2.66	2.63
Other crops	76.76	78.59	80.10	81.51	82.89	84.19	85.40	86.64	88.15	89.98	92.14
Cattle	66.51	66.09	64.78	66.53	68.26	70.89	72.67	73.90	74.72	75.71	76.80
Hogs	20.18	19.89	21.47	23.20	24.91	25.47	25.70	25.75	25.70	25.93	26.36
Dairy products	35.06	37.10	38.54	39.30	40.14	40.84	41.58	41.93	42.66	43.50	44.51
Poultry, eggs	46.28	45.92	46.40	47.21	47.80	48.56	49.20	49.89	50.67	51.76	53.02
Other livestock	7.23	7.32	7.50	7.75	7.99	8.22	8.42	8.59	8.76	8.96	9.19
Total cash receipts	372.90	375.12	383.55	391.75	399.05	405.55	410.98	415.72	421.21	428.16	435.65

All projections are averages across 500 outcomes.

Farm production expenses

Calendar year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
					(Billion dollars)						
Feed	58.31	59.11	60.85	61.28	61.50	61.63	61.80	62.06	62.52	63.01	63.43
Purchased livestock	28.72	27.99	26.77	27.35	28.03	29.12	29.80	30.23	30.45	30.74	31.07
Seed	22.03	22.05	22.39	22.81	23.23	23.59	23.92	24.24	24.59	24.97	25.37
Fertilizer and chemicals	37.66	37.87	38.53	38.84	39.32	39.59	40.11	40.67	41.13	41.62	42.28
Fuels and electricity	21.04	20.42	21.28	22.30	22.84	23.28	23.89	24.51	25.12	25.90	26.80
Interest	21.96	23.28	24.35	25.16	25.80	26.29	26.68	27.05	27.37	27.67	28.00
Contract and hired labor	37.52	38.66	39.84	41.07	42.35	43.64	44.93	46.24	47.65	49.14	50.75
Capital consumption	37.33	37.33	37.38	37.47	37.60	37.77	37.96	38.15	38.33	38.52	38.74
Rent to landlords	19.13	19.10	19.16	19.33	19.50	19.66	19.80	19.88	19.94	20.03	20.17
All other	86.13	87.64	89.55	91.25	92.87	94.44	96.08	97.66	99.29	100.98	102.76
Total production expenses	369.83	373.46	380.09	386.85	393.05	399.01	404.97	410.69	416.38	422.56	429.38

All projections are averages across 500 outcomes.

Farm income indicators

Calendar year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
					(Billion dollars)						
1. Farm receipts	407.86	411.68	421.74	430.83	439.04	446.42	452.68	458.17	464.50	472.20	480.43
Crops	197.63	198.79	204.86	207.76	209.94	211.57	213.40	215.66	218.69	222.29	225.78
Livestock	175.27	176.32	178.69	183.99	189.10	193.98	197.58	200.06	202.52	205.87	209.87
Farm-related	34.96	36.56	38.20	39.08	39.99	40.87	41.71	42.45	43.29	44.05	44.77
2. Government payments	13.76	11.93	10.82	10.89	11.36	11.69	11.79	12.01	12.09	12.49	12.39
3. Gross cash income (1 + 2)	421.62	423.61	432.56	441.71	450.40	458.11	464.47	470.18	476.59	484.69	492.82
4. Non-money income	19.77	20.50	20.95	21.27	21.49	21.64	21.74	21.79	21.83	21.89	21.96
5. Value of inventory Change	-8.44	-2.07	-0.27	-0.68	-0.51	-0.45	0.02	-0.03	0.10	0.04	-0.09
6. Gross farm income (3 + 4 + 5)	432.96	442.04	453.24	462.30	471.38	479.31	486.22	491.93	498.51	506.62	514.69
7. Cash expenses	330.27	333.66	339.97	346.47	352.43	358.15	363.87	369.37	374.85	380.82	387.41
8. Total expenses	369.83	373.46	380.09	386.85	393.05	399.01	404.97	410.69	416.38	422.56	429.38
9. Net cash income (3 - 7)	91.35	89.95	92.59	95.25	97.97	99.96	100.60	100.81	101.74	103.87	105.41
10. Realized net farm income (3 + 4 - 8)	71.57	70.65	73.42	76.14	78.84	80.75	81.23	81.27	82.04	84.02	85.40
11. Net farm income (6 - 8)	63.13	68.58	73.15	75.46	78.33	80.30	81.25	81.24	82.13	84.06	85.31
Deflated (2019 $)	64.55	68.58	71.54	72.05	72.95	72.98	72.13	70.52	69.75	69.83	69.28

All projections are averages across 500 outcomes.

Land rental rates and real estate values

Calendar year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Rental rates					(Dollars per acre)						
Cropland	138.00	139.67	140.34	141.67	142.86	143.94	144.76	145.24	145.64	146.19	147.03
Pasture	12.50	12.20	11.90	11.73	11.68	11.72	11.80	11.86	11.90	11.94	12.03
Value of farm real estate	3,140	3,119	3,107	3,110	3,122	3,142	3,161	3,172	3,179	3,192	3,210

All projections are averages across 500 outcomes.

Land use for major crops and the conservation reserve

Marketing year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Planted area					(Million acres)						
Corn	89.13	91.66	92.70	92.67	92.60	92.13	92.10	91.97	92.01	92.17	92.06
Soybeans	89.20	85.01	83.79	83.96	84.01	84.23	84.23	84.36	84.41	84.37	84.42
Wheat	47.80	46.47	48.49	48.08	47.81	47.58	47.32	47.04	46.80	46.50	46.27
Upland cotton	13.85	14.07	13.33	13.38	13.29	13.28	13.27	13.28	13.23	13.19	13.16
Sorghum	5.69	5.94	6.05	6.03	6.07	6.07	6.07	6.06	6.06	6.06	6.07
Barley	2.54	2.58	2.61	2.55	2.53	2.51	2.51	2.52	2.51	2.48	2.45
Oats	2.75	2.72	2.81	2.81	2.82	2.84	2.86	2.86	2.87	2.88	2.90
Rice	2.95	2.83	2.87	2.82	2.81	2.81	2.81	2.82	2.85	2.86	2.87
Sunflowers	1.30	1.42	1.43	1.42	1.41	1.41	1.42	1.41	1.41	1.40	1.41
Peanuts	1.43	1.57	1.58	1.59	1.59	1.58	1.57	1.57	1.57	1.56	1.56
Sugar beets	1.11	1.16	1.17	1.19	1.19	1.17	1.17	1.16	1.15	1.14	1.12
Sugar cane (harvested)	0.91	0.91	0.91	0.91	0.91	0.89	0.88	0.87	0.86	0.84	0.83
12 crop planted area	258.65	256.34	257.73	257.40	257.03	256.52	256.21	255.92	255.72	255.46	255.11
Hay (harvested)	52.84	53.10	53.25	53.21	53.09	53.02	52.95	52.90	52.84	52.79	52.75
12 crops + hay	311.49	309.44	310.98	310.61	310.12	309.54	309.17	308.82	308.56	308.25	307.86
Conservation reserve (CRP)	22.63	22.60	22.80	23.00	23.20	23.50	23.50	23.50	23.50	23.50	23.50
12 crops + hay + CRP	334.12	332.04	333.78	333.61	333.32	333.04	332.67	332.32	332.06	331.75	331.36
Double-crop soybeans	3.55	3.30	3.42	3.42	3.41	3.39	3.38	3.36	3.36	3.34	3.33
12 crops + hay + CRP - double-crop soybeans	330.57	328.74	330.36	330.19	329.91	329.65	329.29	328.95	328.70	328.41	328.04

All projections are averages across 500 stochastic outcomes.

Balance sheet of the farm sector

Calendar year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
					(Billion dollars)						
Assets	3,033	3,035	3,036	3,042	3,056	3,075	3,090	3,100	3,109	3,123	3,139
Real estate	2,519	2,509	2,500	2,502	2,511	2,526	2,540	2,548	2,554	2,563	2,577
Other assets	514	526	536	540	545	549	550	552	555	560	562
Debts	411	423	434	442	448	453	458	462	466	470	474
Real estate	251	260	266	270	273	276	278	279	281	282	283
Other debts	160	163	167	171	174	177	180	183	185	188	191
Debt/asset ratio	13.5%	13.9%	14.3%	14.5%	14.6%	14.7%	14.8%	14.9%	15.0%	15.0%	15.1%

All projections are averages across 500 outcomes.

Consumer price indices for food

Calendar year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
					(1982-84=100)						
Total food	253.6	258.9	265.3	272.0	278.8	285.7	292.4	299.1	305.8	312.8	320.1
(Inflation rate)	1.4%	2.1%	2.4%	2.5%	2.5%	2.4%	2.4%	2.3%	2.3%	2.3%	2.3%
Food at home	239.7	243.8	249.2	255.2	261.3	267.5	273.5	279.5	285.5	291.8	298.3
Cereal and bakery	272.8	278.4	285.2	292.0	298.9	305.5	312.4	319.3	326.5	333.8	341.4
Meat	248.9	252.3	257.2	263.8	271.1	278.3	285.1	291.5	297.7	304.2	311.2
Dairy	216.5	220.1	226.2	232.4	238.4	244.5	250.6	256.4	262.5	269.0	275.8
Fruit and vegetables	297.8	304.6	311.4	318.0	324.6	331.1	337.6	344.0	350.6	357.3	364.3
Other food at home	210.2	212.7	216.5	220.9	225.4	230.0	234.8	239.6	244.4	249.4	254.6
Sugar and sweets	215.9	218.5	222.7	228.0	233.3	238.6	244.1	249.5	255.0	260.8	266.7
Fats and oils	228.0	230.5	234.8	240.1	245.4	250.7	256.1	261.7	267.5	273.5	279.8
Other prepared items	224.7	227.2	231.1	235.9	240.9	246.0	251.5	256.9	262.4	268.1	273.9
Non-alc. beverages	167.6	170.0	173.2	176.6	179.9	183.2	186.6	190.0	193.5	197.0	200.6
Food away from home	275.9	282.7	290.2	297.8	305.5	313.2	320.8	328.3	335.9	343.7	351.8

All projections are averages across 500 stochastic outcomes.

Consumer expenditures for food

Calendar year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
					(Dollars per person)						
Total food per capita	5,131	5,310	5,473	5,640	5,806	5,967	6,124	6,282	6,447	6,617	6,796
Food at home	2,359	2,425	2,491	2,561	2,630	2,697	2,764	2,830	2,897	2,968	3,042
Food away from home	2,772	2,885	2,982	3,079	3,176	3,269	3,360	3,453	3,549	3,650	3,754
Multiply by population for:					(Billion dollars)						
Total U.S. food expenditures	1,685	1,756	1,823	1,891	1,961	2,029	2,096	2,164	2,235	2,309	2,386

All projections are averages across 500 stochastic outcomes.

Stochastic results

Marketing year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Corn price					(Dollars per bushel)						
90th percentile	3.62	4.74	4.89	4.98	4.77	4.93	4.66	4.79	4.88	4.90	4.79
Expectation	3.53	3.81	3.82	3.83	3.77	3.77	3.72	3.74	3.75	3.75	3.71
10th percentile	3.45	2.97	2.92	2.84	2.80	2.81	2.76	2.71	2.80	2.80	2.75
Soybean price					(Dollars per bushel)						
90th percentile	8.79	10.96	11.37	11.56	11.32	11.30	11.41	11.75	11.64	11.73	11.56
Expectation	8.42	8.78	9.11	9.09	9.09	9.03	9.04	9.03	9.03	9.07	9.03
10th percentile	8.06	6.86	6.93	6.87	6.72	6.88	6.76	6.68	6.52	6.80	6.65
Wheat price					(Dollars per bushel)						
90th percentile	5.23	6.54	6.69	6.98	6.70	6.57	6.65	6.63	6.58	6.61	6.62
Expectation	5.16	5.31	5.30	5.31	5.21	5.19	5.16	5.15	5.14	5.11	5.08
10th percentile	5.10	4.18	3.83	3.83	3.74	3.87	3.81	3.61	3.63	3.65	3.66
PLC payments					(Million dollars)						
90th percentile	2,059	10,407	10,856	12,241	12,073	12,327	12,162	13,396	14,413	13,558	13,664
Expectation	1,837	4,478	4,591	5,015	5,162	5,212	5,335	5,424	5,872	5,750	5,806
10th percentile	1,616	780	581	584	680	665	651	507	550	545	566
ARC payments					(Million dollars)						
90th percentile	1,255	1,343	1,386	1,329	1,517	1,707	1,905	1,764	2,080	1,962	2,044
Expectation	1,012	634	592	600	639	678	786	775	779	785	802
10th percentile	794	125	79	89	89	97	106	94	93	86	82
Crop ins. net indemnities					(Million dollars)						
90th percentile	3,415	9,435	10,061	10,151	10,927	11,438	10,896	10,981	11,639	10,829	11,470
Expectation	3,315	5,675	5,923	6,099	6,323	6,505	6,649	6,712	6,873	6,894	6,912
10th percentile	3,214	2,614	2,708	2,753	2,753	3,017	3,336	3,526	3,343	3,299	3,386